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# TRANSMITTAL OF CLOSURE CERTIFICATION REPORT FOR THE DETREX STILL, HAZARDOUS WASTE MANAGEMENT UNIT NO. 26 (CONTAINS MAIN REPORT AND TWO VOLUMES OF APPENDICES)

09/21/95

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CLOSURE PLAN

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**Department of Energy**
**Fernald Environmental Management Project**
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SEP 21 1995
DOE-1511-95

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Dear Mr. Saric and Mr. Schneider:

**TRANSMITTAL OF CLOSURE CERTIFICATION REPORT FOR THE DETREX STILL, HAZARDOUS WASTE MANAGEMENT UNIT NO. 26**

Reference: Letter, D. R. Schregardus to J. P. Hamric, "Closure Plan Approval U.S. DOE-FEMP OH6890008976", dated July 20, 1995.

Enclosed is the Detrex Still Closure Certification Report. This report completes the closure plan in compliance with Ohio Administrative Code (OAC) 3745-66-13. Submittal of the Closure Certification Report is the final requirement of the closure plan and completes Hazardous Waste Management Unit (HWMU) No. 26.

If you have any questions regarding this document, please contact Robert Danner at (513) 648-3167.

Sincerely,

Johnny Reising

Johnny W. Reising
Fernald Remedial Action
Project Manager

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FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

# Hazardous Waste Management Unit No. 26 Closure Certification Report for the Detrex Still

## Main Report

September 1995

U.S. DEPARTMENT OF ENERGY

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# Hazardous Waste Management Unit No. 26
# Closure Certification Report
# for the
# Detrex Still

Fernald Environmental Management Project

September 1995

**U.S. DEPARTMENT OF ENERGY**

# CONTENTS


1.0 INTRODUCTION 1-1
- 1.1 PURPOSE 1-1
- 1.2 BACKGROUND 1-1
- 1.3 UNIT DESCRIPTION 1-1

2.0 SUMMARY OF CLOSURE ACTIONS 2-1
- 2.1 ASBESTOS ABATEMENT 2-3
- 2.2 INDIVIDUAL EQUIPMENT MARKING FOR WASTE TYPE (HAZARDOUS, LOW-LEVEL RADIOLOGICAL, MIXED, TSCA) 2-3
- 2.3 PIPE AND PIPING REMOVAL 2-3
- 2.4 CONDENSER UNIT REMOVAL 2-3
- 2.5 TANK WRAPPING FOR RCRA STORAGE 2-4
- 2.6 STEAM HEATING UNIT REMOVAL 2-4
- 2.7 RESIDUE SAMPLING 2-4
- 2.8 CLEANING OF INTERNAL RESIDUES FROM TANK 2-4
- 2.9 SEPARATION OF TANK FROM SUPPORT STRUCTURES, LIFTING, AND CONTAINERIZATION OF TANK 2-6
- 2.10 SCABBLING AND CONTAINERIZATION OF SCABBLED MATERIALS 2-6
- 2.11 SCABBLED CONCRETE SAMPLING 2-7
- 2.12 APPLICATION OF "CLEAN DEBRIS SURFACE" RULE FOR SCABBLED CONCRETE 2-8
- 2.13 SUPPORT STRUCTURES AND CONDENSER UNIT STEAM CLEANING (PHYSICAL EXTRACTION TREATMENT) 2-8
- 2.14 DECONTAMINATION FLUIDS SAMPLING 2-9

3.0 WASTES GENERATED FROM THE CLOSURE AND DISPOSITION OF WASTE STREAMS 3-1
- 3.1 RCRA DETERMINATIONS OF GENERATED WASTE STREAMS 3-1
- 3.2 WASTE CHARACTERIZATION SAMPLING RESULTS 3-1
  - 3.2.1 Interior Tank Residues 3-1
  - 3.2.2 Scabbled Concrete 3-2
  - 3.2.3 Decontamination Fluids 3-7

## CONTENTS (continued)

4.0 CERTIFICATION STATEMENTS 4-1

APPENDIX 1 CLOSURE PLAN APPROVAL

ATTACHMENT A CORRESPONDENCE
ATTACHMENT B ASBESTOS ABATEMENT DOCUMENTATION
ATTACHMENT C SAMPLING DOCUMENTATION
ATTACHMENT D LABORATORY ANALYTICAL RESULTS
ATTACHMENT E CONCRETE SCABBLING DATA
ATTACHMENT F RCRA DETERMINATIONS AND MATERIAL EVALUATION FORMS FOR GENERATED WASTES
ATTACHMENT G ENGINEER'S FIELD LOG
ATTACHMENT H CRU3 FIELD IMPLEMENTATION NOTES

Note: Attachments A to C are bound separately as Volume 1 of 2.
Attachments D to H are bound separately as Volume 2 of 2.

# TABLES


2-1 Summary of Analytical Results for CPID Contaminants of Concern in Decontamination Rinsate 2-2

3-1 Preliminary RCRA Characterization of Generated Materials 3-2

3-2 RCRA Characterization and Containerization of Generated Materials 3-3

3-3 Analytical Results for Tank Residue 3-4

3-4 Analytical Results for Scabbled Concrete 3-8

3-5 Analytical Results for Decontamination Fluids 3-12

# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| ALARA | as low as reasonably achievable |
| COC | contaminant of concern |
| CPID | Closure Plan Information and Data |
| DOE | U.S. Department of Energy |
| FEMP | Fernald Environmental Management Project |
| FMPC | Feed Materials Production Center |
| HWMU | Hazardous Waste Management Unit |
| LLW | Low-Level Waste |
| MEF | Materials Evaluation Form |
| OAC | Ohio Administrative Code |
| OEPA | Ohio Environmental Protection Agency |
| PCB | polychlorinated biphenyl |
| PID | photoionization detector |
| PPE | personal protective equipment |
| PSAP | Preliminary Sampling and Analysis Plan |
| RCRA | Resource Conservation and Recovery Act |
| RSO | Remediation Support Operations |
| SAP | Sampling and Analysis Plan |
| SMS | Site Media Sampling |
| SOP | Standard Operating Procedure |
| TCLP | Toxicity Characteristic Leaching Procedure |
| TSCA | Toxic Substances Control Act |
| USEPA | U.S. Environmental Protection Agency |
| VOA | volatile organic analysis |
| VOC | volatile organic compound |
| WMB | white metal box |

# 1.0 INTRODUCTION

The Fernald Environmental Management Project (FEMP) is a U.S. Department of Energy (DOE) owned facility located near Fernald, in Hamilton and Butler Counties, Ohio. The FEMP, formerly known as the Feed Materials Production Center (FMPC), was operated to produce uranium fuel elements, target cores, and other uranium compounds for use at other DOE facilities in support of the United States defense program.

The Detrex Still, Hazardous Waste Management Unit (HWMU) No. 26 (referred to as the Detrex Still), was used in support of the FMPC activities and declared a HWMU in June 1991. A Closure Plan Information and Data (CPID) document was prepared that described the closure procedure used for the Detrex Still.

## 1.1 PURPOSE

This certification report summarizes the activities conducted to clean close the Detrex Still and completes the requirements for closure, according to Ohio Administrative Code (OAC) 3745-66-15. This certification report was prepared in accordance with the OEPA Closure Plan Review Guidance, Interim Final, September 1993 (OEPA Guidance).

## 1.2 BACKGROUND

The CPID was submitted to OEPA on November 5, 1993. Upon incorporation of comments, a revised CPID was submitted to OEPA on March 2, 1994. DOE received approval by OEPA of the CPID on July 25, 1995. A copy of the letter of approval is provided as Appendix 1. Correspondence concerning OEPA comments is provided in Attachment A. The field activities, to implement the CPID, were initiated in August 1994 and were completed in October 1994.

## 1.3 UNIT DESCRIPTION

The Detrex Still was operated as a solvent reclamation unit. The equipment occupied an area approximately 2 feet 8 inches wide by 6 feet 4 inches long by 7 feet 6 inches high. The HWMU was located at the north end of Building 1A in Plant 1. The Detrex Still

consisted of the still tank, solvent condenser, connecting piping and valves, pumps, equipment supports, and the underlying concrete floor area. The entire HWMU was enclosed by Building 1A and was not exposed to weathering effects. Prior to starting closure activities, the Detrex Still equipment was in good condition and did not exhibit any obvious signs of corrosion, external damage, or missing components.

The still tank and connected steam piping were covered with asbestos insulation. The still tank was drained of pumpable liquids when the Detrex Still was shut down. Based on visual observations, there was believed to be solid distillation residue in the bottom of the still tank.

Sampling of Detrex Still waste residue, which was removed from the still during its operation (September 1956 to January 13, 1981), was conducted under FEMP Sample Plan No. 1038. Analysis of these samples indicated that some of the waste contained chromium at levels exceeding the toxicity characteristic threshold of 5.0 parts per million (ppm). Therefore, the waste was designated with a waste code of D007. In addition, tetrachloroethylene and trichloroethylene were detected at levels which exceeded the regulatory threshold. Therefore, the waste was also designated as D039 and D040, respectively, as well as the additional waste codes F001 and F002 for spent solvents. Acetone was also found in one sample resulting in a F003 waste code designation.

# 2.0 SUMMARY OF CLOSURE ACTIONS

The closure activities completed for the Detrex Still met the following performance standards (OAC 3745-66-11 and 40 CFR 265.111) as presented in the CPID:

- The clean closure will eliminate the need for post-closure maintenance associated with the Detrex Still by decontaminating and removing equipment and decontaminating the concrete floor by surface layer removal (scabbling).

- To the extent necessary to protect human health and the environment, the closure will control, minimize, or eliminate the escape of hazardous waste, hazardous waste constituents, contaminated rainfall, or waste decomposition products to the ground, to surface waters, or to the atmosphere. To accomplish this objective, material and equipment that cannot be decontaminated to satisfy the cleanup levels specified in Section 4.1 of the CPID will be containerized and managed as mixed wastes as described in Section 2.2.3 of the CPID.

- The closure will comply with the unit-specific closure requirements of OAC 3745-55-97 (40 CFR 264.197) for tanks.

Clean closure was accomplished by removing and managing the process components of the Detrex Still (still tank, solvent lines, pump) as mixed waste. The non-process external structural supports were decontaminated and managed as scrap metal, and the underlying concrete floor was scabbled to achieve a clean debris surface. The still tank residues, the concrete scabble material and the decontamination rinsate were analyzed for the contaminants of concern (COCs) detailed in the CPID. Table 2-1 lists the contaminants of concern and summarizes the results of the analysis of the decontamination rinsate. These analytical results are presented in more detail in Table 3-5 along with the analytical results for all other constituents for which analyses were

performed. This Closure Certification Report documents that closure actions met the RCRA requirements of the CPID. The 14 closure actions and completion dates follow:

1) 8-19-94 Asbestos abatement
2) 8-22-94 Individual equipment marking for waste type (Hazardous, Low-Level Radiological, Mixed, Toxic Substances Control Act [TSCA])
3) 9-13-94 Pipe and piping removal
4) 9-15-94 Condenser unit removal
5) 9-16-94 Tank wrapping for RCRA storage prior to containerization
6) 9-16-94 Steam heating unit removal
7) 9-16-94 Residue sampling
8) 9-19-94 Cleaning of internal residue from tank
9) 9-20-94 Separation of tank from support structures, lifting, and containerization of tank
10) 9-26-94 Scabbled concrete sampling
11) 9-28-94 Scabbling and containerization of scabbled materials
12) 9-29-94 Support structure and condenser unit steam cleaning decontamination
13) 9-29-94 Decontamination fluids sampling
14) 10-3-94 Application of "clean debris surface" rule for scabbled concrete

**Table 2-1.** Summary of Analytical Results for CPID Contaminants of Concern in Decontamination Rinsate.

| Constituent | Units | Clean Closure Limits[1/] | Sample No. 400000 | | Sample No. 400001 | |
|---|---|---|---|---|---|---|
| Chromium, total | μg/l | 1,000 | 400 | | 376 | |
| Acetone, total | μg/l | 1,000 | 100 | U | 17 | J |
| 1,1,1-Trichloroethane, total | μg/l | 75 | 9 | | 6 | |
| Trichloroethene, total | μg/l | 1,000 | 5 | U | 5 | U |
| Tetrachloroethene, total | μg/l | 75 | 5 | U | 5 | U |

1/ Clean closure limits are based on methodology in OEPA Closure Plan Review Guidance Interim Final, September 1993, Section 3.10.
U = Undetected
J = Value is an estimate.

These closure activities, a summary of related closure actions taken, and any deviations from the CPID are described below.

## 2.1 ASBESTOS ABATEMENT

Asbestos abatement for the Detrex Still and ancillary equipment was undertaken by the Remediation Support Operations (RSO) Asbestos Abatement Group and performed by Pipe and Asbestos Shop personnel. All asbestos insulation on the Detrex Still piping and ancillary equipment was removed pursuant to the CPID and FEMP asbestos removal work plan. All removed asbestos was containerized and managed in accordance with FEMP asbestos abatement protocols and Materials Evaluation Form (MEF) No. 1340. In accordance with the CPID, the asbestos wrap encasing the Detrex Still tank was left in place and the tank disposition managed accordingly. A copy of the asbestos abatement work plan is included in Attachment B.

## 2.2 INDIVIDUAL EQUIPMENT MARKING FOR WASTE TYPE (HAZARDOUS, LOW-LEVEL RADIOLOGICAL, MIXED, TSCA)

All Detrex equipment and ancillary equipment were tagged to indicate its suspected waste characterization and containerization requirements prior to disassembly. This enabled the work crews to easily identify the proper disposition and containerization during the disassembly.

## 2.3 PIPE AND PIPING REMOVAL

Beginning with the piping classified as low-level radiological waste, RSO millwrights removed the piping using a portable band saw and a reciprocating saw. This included all of the process cooling water and steam supply lines. Next, all piping classified as mixed waste was removed in the same manner. This piping consisted of the spent solvent drum suction hose, pump inlet, pump and pump outlet/tank fill lines, the solvent vapor supply inlet line to the condenser unit, and the reclaimed solvent supply line. All piping was containerized and sealed in 55-gallon drums as indicated in Table 3-1.

## 2.4 CONDENSER UNIT REMOVAL

RSO millwrights removed the condenser unit using a portable band saw and a reciprocating saw. The unit was then positioned for later containerization with the Detrex Still support structure (when removed) for decontamination as specified in the CPID.

## 2.5 TANK WRAPPING FOR RCRA STORAGE

Following its removal, the still tank was wrapped in Herculite™ and sealed with duct tape. The glass portals and gauging tube were also taped prior to wrapping. A temporary hole was cut in the end of the wrap for access to the steam coil heating unit located in the still as described in Section 2.6. The wrap was required for management of the still as a TSCA waste (asbestos). It was also an additional protective barrier between the tank's asbestos wrap and the work crews.

## 2.6 STEAM HEATING UNIT REMOVAL

To remove the steam coil heating unit in the still tank, a glove bag was attached to the still tank. The steam unit attachment bolts (approximately 20) were then removed using a ratchet and socket. The bolts were dropped into the glove bag. The unit's seal to the tank was pried open and the steam unit pulled two thirds of the way out. Because of a tight fit and two vertical brackets on the inside end of the steam unit, the tubes attached to the brackets had to be cut off to allow complete removal. The unit was removed directly into the glove bag, thereby enclosing the unit within the glove bag.

This provided as low as reasonably achievable (ALARA) exposures to work personnel. The unit was temporarily stored within the Detrex area.

## 2.7 RESIDUE SAMPLING

Still tank residue sampling was done in accordance with the procedures described in the CPID Sampling and Analysis Plan (SAP) and the FEMP Preliminary Sampling and Analysis Plan (PSAP) (RI/FS WBS No. 04.48.01) prepared by Site Media Sampling (SMS). A copy of the SMS PSAP is included in Attachment C, Item 1. No liquid residue was found. As noted in the field sampling log, there was an insufficient quantity of residue material available to complete collection of the duplicate sample. Field Sampling Logs and Chain-of-Custody forms for the still tank residue sampling activity are included in Attachment C, Items 2 and 3.

## 2.8 CLEANING OF INTERNAL RESIDUES FROM TANK

The removal of the steam coil heating unit from the still tank allowed the volume of internal residue to be visually observed and estimated. The residue volume was less

than was originally estimated in the CPID. At its thickest point in the tank curvature, the solvent residue (resembling hardened shellac) was approximately 1/4 inch in depth; not 2 inches as estimated in the CPID. An additional 1/4 to 1 inch of crusty solids were built up in corners and crevices on the bottom outside edges of the still tank and at the point where the steam coil heating unit pipe entered the tank. In addition, an approximately 1/8-inch-thick by 3-inch-wide area of crusty solids (resembling a "bathtub ring") was present around interior walls at what might have been the original operating solvent level. Based on these observations, it was estimated that approximately 0.3 $ft^3$ of solid residual materials were present in the lower portion of the tank.

Clean out and removal of the tank residue could not be accomplished as planned and is a deviation from the CPID. The removal of tank residues was difficult because the opening made available by the removal of the steam unit was only approximately 7 inches high by 14 inches wide, and was located 2 inches above the bottom of the tank. While this position allowed reasonable access to the residue located near the opening, it did not permit adequate access to the tank center and far end or to the "bathtub ring", as described above. In addition, the cured residue appeared to have the texture and consistency of hardened shellac on the outer surface. At the tank surface/residue interface, the residue had a hard gum/sticky tar consistency. This made removal of the residue almost impossible even where reachable with hand tools (putty knife, flat scrapper), and completely impossible once handle extensions were required for the more distant material. The handle extensions resulted in "angle of attack" and down-force pressures that were severely limited by the limited access provided by the available opening.

Based on these difficulties, it was determined by CRU3 personnel, with the concurrence of the certifying engineer, that the removal of all residues would not be possible. Since the still tank unit was already determined to be mixed/TSCA waste, the waste management requirements for the tank under the CPID would not be changed if the distillation residue remained in the tank. Any further decontamination of the tank will need to be addressed via a treatment technology not currently available at the FEMP site.

The initial photoionization detector (PID) measurements of the tank vapors at the cut-off piping tank openings showed that the concentration of VOCs in the tank interior was greater than the 25 ppm maximum allowed by the Health and Safety Plan for the use of cartridge respirators as Level C personal protective equipment (PPE). Therefore, the

removal of the steam unit and the initial tank cleaning attempts were accomplished using Level B supplied air respiratory protection. Full "anti-c" clothing was worn during all activities. As the work progressed, the concentration of airborne volatile organic compounds within the internal area of the tank decreased, and the breathing zone PID measurements decreased to levels below 25 ppm. At this time the PPE requirements were downgraded to Level C full-face combination cartridge respirators.

When the activities within the still tank were complete, the steam unit was reinstalled in its original position and resecured with the original attachment bolts. The process of reinstallation was the reverse of removal. The internal end of the unit was exposed from the glove bag, partially inserted, and pushed into place, allowing the glove bag to come off as insertion proceeded. The glove bag was disposed of as mixed (contact) waste and placed in the container used for that waste stream as noted in Section 3.

## 2.9 SEPARATION OF TANK FROM SUPPORT STRUCTURES, LIFTING, AND CONTAINERIZATION OF TANK

The support structure was removed from the still tank unit. This was accomplished by lifting the tank and supports (with proper FEMP lifting/rigging permitting) and cutting off the tank support structure using a portable band saw and reciprocating saw.

While the tank was suspended, it was positioned over a white metal box (WMB) (Serial No. 653808), lowered, and turned to lie on its side inside the WMB. Some additional trimming of the pipe connections was required at this time to allow the still tank to fit within the WMB. The trimmed pieces, that were removed, were placed into the appropriate low-level radiological or mixed waste containers depending on their original function as described in Section 2.3.

The Detrex Still support structure and the condenser unit were containerized in WMB No. 653822. This WMB was briefly stored within the Plant 1 area until it was moved to the FEMP D&D area for decontamination as described in Section 2.13.

## 2.10 SCABBLING AND CONTAINERIZATION OF SCABBLED MATERIALS

As required by the CPID, the floor area contained within the HWMU boundaries and additional adjacent areas were marked and gridded for surface scabbling. The initial floor area marked and gridded for surface scabbling was somewhat larger than the

relatively small HWMU boundary due to the need to provide sufficient clearance and access for the equipment and personnel. Initial surface elevations for this gridded floor area were measured by the SMS group using a Geodometer Model 4000. After the elevations were determined, the concrete scabbling activity was initiated using a Pentek Squirrel 3 three-head scabbler and a Pentek Vac Pac vacuum system. All of the scabbled material was recovered using this vacuum system and collected in a 55-gallon open-top sealed container. After two complete scabbling passes had been completed over the entire area, a second post-scabbling elevation survey was performed by SMS using the same procedure. This second survey showed that the average removal of concrete floor material following the scabbling was 0.3425 cm (0.135 inches). A visual inspection showed that this depth was sufficient to remove all surface staining and imbedded debris. However, the area within the boundaries of the HWMU is required under 40 CFR 268.45, as described in the CPID, to be scabbled to a minimum depth of 0.6 cm. Therefore, the smaller area within the HWMU boundaries was further scabbled using two Makita rotary hammers (Model No. HR-5000). Following this scabbling, the final scabbling depth within the HWMU ranged from 1.06 cm (0.42 inches) to 1.98 cm (0.78 inches) with the average being 1.4224 cm (0.56 inches). The scabbling report supplied by SMS is included in Attachment E as Item 1. A summary of the measured elevations for each of the scabbling events is included as Items 2 and 3, respectively.

## 2.11 SCABBLED CONCRETE SAMPLING

Samples of the scabbled concrete were collected after the first two scabbling passes were completed. All of the samples were collected from the material removed from the 0.0 to 0.0135 inch depth zone and the initial area as described above. At the time that the samples were taken, the work crew had informed CRU3 that they believed that they had removed material to the required 0.6 cm, and the sampling was scheduled and was completed before the confirmatory post-scabbling elevational survey was completed. When the survey showed that additional scabbling was required because the required 0.6 cm of material had not been removed, the work crew proceeded with the additional scabbling. No additional sampling of the collected scabbled material was performed after the final scabbling was completed.

The sampling activity, with the exception as described above, was performed in accordance with the CPID SAP and FEMP PSAP (RI/FS WBS No. 04.48.01). Copies of the PSAP, all SMS Field Sampling Logs, and Chain of Custody forms are included in Attachment C as Items 1, 4, and 5, respectively.

## 2.12 APPLICATION OF "CLEAN DEBRIS SURFACE" RULE FOR SCABBLED CONCRETE

A visual inspection of the HWMU area following final scabbling showed no evidence of staining. Therefore, the HWMU area meets the requirement of a "clean debris surface." As noted in Section 2.10, a somewhat larger floor area was scabbled than that which lies strictly within the HWMU boundaries. However, the additional area scabbled outside of the HWMU boundaries is therefore not subject to the requirement of a "clean debris surface." This additional scabbling was performed beyond the requirements of the CPID and is therefore a deviation from the CPID.

## 2.13 SUPPORT STRUCTURES AND CONDENSER UNIT STEAM CLEANING (PHYSICAL EXTRACTION TREATMENT)

Cleaning of the support structures and condenser unit occurred after the WMBs containing these units were moved to the FEMP D&D facility for physical/chemical extraction (steam cleaning) decontamination treatment. When the units were at the D&D area, they were removed from the WMB and suspended over another clean WMB (Serial No. 740341) which acted as a decontamination solution catch basin. This WMB was new and unused. Detergent washing and water rinsing were used to decontaminate the equipment surfaces in combination with steam cleaning. The cleaning agent used was Texo "Tex AC" alkaline powder.

The condenser unit was disassembled by unbolting it into three sections. All of the solvent-contact condensate areas were cleaned. In addition, all removal materials were cleaned from the exterior of the unit. Visual inspection of these surfaces revealed very limited evidence of staining and no evidence of foreign materials. There was no visual evidence of staining or residual material on the interior surfaces.

The internal area of the condenser cooling water jacket was inaccessible because of its welded design. A full decontamination treatment of all of the condenser surfaces was not possible and the strict application of a "clean debris surface" for the entire unit could not be applied. However, as described further in Section 3, CRU3 and the certifying engineer believe that the unit is clean based on the concentrations of the contaminants of concern in the decontamination fluids. It is unlikely that solvent residue could have reached the internal surfaces of the cooling water jacket due to the

operational design and function of this type of equipment. Based on this position, the unit has been classified as Scrap Metal for Recycle.

The still support structure was also decontaminated by steam cleaning. The structure was supported over the WMB being used as a catch basin for the decontamination solution. After cleaning, there was no visual evidence of surface residues. The surface was cleaned down to the painted surface. The steam unit used was not of sufficient capacity to remove the paint and a "clean debris surface" was not achieved. However, as described further in Section 3, CRU3 and the certifying engineer believe that the painted surface is clean and that the support structure is scrap metal for recycle based on the concentrations of the contaminants of concern in the decontamination fluids.

If the support structure and condenser are not considered clean, they must be managed as hazardous waste which would represent a deviation from the CPID.

## 2.14 DECONTAMINATION FLUIDS SAMPLING

Samples were taken from the used decontamination solution produced during decontamination of the support structure and condenser as described in Section 2.13. The sampling was performed as specified in the FEMP/SMS PSAP (RI/FS WBS No. 04.48.01) and was in conformance with the requirements of the CPID SAP. Copies of the Field Sampling Log and the Chain of Custody forms are in Attachment C, Items 6 and 7.

# 3.0 WASTES GENERATED FROM THE CLOSURE AND DISPOSITION OF WASTE STREAMS

All waste streams generated from this closure were managed and handled in accordance with FEMP Standard Operating Procedures (SOPs). Table 3-1 lists the individual waste streams produced and the preliminary RCRA characterization.

## 3.1 RCRA DETERMINATIONS OF GENERATED WASTE STREAMS

The FEMP Waste Programs Waste Characterization Group performed RCRA characterizations on all of the generated waste streams based on the historical information available prior to sampling. The RCRA determination letter and respective preliminary MEFs are included in Attachment F. A summary of the preliminary RCRA characterization is presented in Table 3-1. The CPID reported that acetone was detected in samples collected in drummed material that was believed to be representative of Detrex Still residues. For this reason, the drummed residues were designated as F003 hazardous waste. However, the FEMP Waste Programs Waste Characterization Group stated that the F003 waste designation does not apply based on additional process knowledge as described in the more recent MEF 2085. Following receipt of the analytical results from the waste stream samples collected during closure, the waste streams were re-evaluated for RCRA characterization based on the analytical results and the process history. The updated RCRA designation is listed in Table 3-2. The storage and final disposal of the waste streams generated by this closure action are not included in this Closure Certification Report.

## 3.2 WASTE CHARACTERIZATION SAMPLING RESULTS

Pursuant to the requirements of the CPID, the tank interior residues, scabbled concrete, and decontamination fluids were sampled as described in Section 2 to meet the requirements of the CPID. The results of the sampling and analyses are presented in Tables 3-3, 3-4, and 3-5.

### 3.2.1 Interior Tank Residues

The results of sampling and analyses on the interior tank residues are listed in Table 3-3. Copies of the laboratory reports are included in Attachment D, Item 1. The

**Table 3-1.** Preliminary RCRA characterization of generated materials

| Waste Stream | MEF No. | Preliminary Characterization | Preliminary EPA Codes Assigned |
|---|---|---|---|
| Still Tank (Scrap Metal For Disposal - Onsite Management) | 2618 | RCRA Hazardous | F001, F002 |
| Condenser and Support Frame (Scrap Metal for Recycle) | 2241 | RCRA Non-Hazardous | Not Applicable |
| Water and Steam Supply Lines (Scrap Metal for Recycle) | 2241 | RCRA Non-Hazardous | Not Applicable |
| Solvent Lines and Pump/Motor (Scrap Metal for Disposal) | 2668 | RCRA Hazardous | F001, F002 |
| Contact Waste - Mixed (Other Residues) | 2612 | RCRA Hazardous | F001, F002 |
| Scabbled Concrete (Debris Containing Hazardous Waste) | 2613 | RCRA Hazardous | F001, F002 |
| Decontamination Solution (Waste Water - Identification and Disposal) | 2611 | RCRA Hazardous | F001, F002 |

sampling plan called for collecting two samples from the interior of the still. However, when the sampling was performed, it was not possible to get a sufficient quantity of sample for the second sample No. 400009 to complete all of the analyses. As a result, this sample was not analyzed for Toxicity Characteristic Leaching Procedure (TCLP) metals, total volatile organic analyses (VOAs), semivolatiles, or polychlorinated biphenyls (PCBs). The first sample No. 400008 was not analyzed for TCLP VOAs due to an error in the analytical request. Sample No. 400006 was the field blank for the sampling of the still residue. Neither sample was analyzed for TCLP semivolatiles.

None of the metals found in the TCLP testing exceeded the maximum concentration. Similarly, none of the VOAs exceeded the TCLP maximum concentration. PCBs and uranium were detected in the tank residue sample.

### 3.2.2 Scabbled Concrete

The results of sampling and analyses on the scabbled concrete are listed in Table 3-4. Copies of the laboratory reports are included in Attachment D, Item 3. Two samples of the scabbled concrete were collected and analyzed for total metals, total VOAs, total semivolatiles, herbicides, and radiological analysis. TCLP analyses were not done on

**Table 3-2.** RCRA characterization and containerization of generated materials

| Waste Stream | RCRA Characterization | Container Type | Quantity | Net Weight | Lot Code | Inventory Number |
|---|---|---|---|---|---|---|
| Still Tank | Mixed/TSCA | WMB (Serial No. 653808) | 1 | 956 | R114-122-V003-4393 | W129224 |
| Condenser and Support Frame | LLW | WMB (Serial No. 653822) | 1 | 1000[2/] | W114-122-V003-4393 | [1/] |
| Water and Steam Supply Piping | LLW | 55-gallon open-top drum | 1 | 198 | W114-122-V003-4393 | W129224 |
| Solvent Lines and Pump | Mixed | 55-gallon open-top drum | 1 | 157 | R114-122-V003-4394 | W515151 |
| Contact Waste - Mixed | Mixed | 55-gallon open-top drum | 2 | 59 | R114-122-V003-9393 #1 & #2 | W515154<br>W515155 |
| Scabbled Concrete | Mixed/PCB | 55-gallon open-top drum | 1 | 382 | R114-122-V011-0393 | W145963 |
| Decontamination Solution | Mixed | 55-gallon closed-top drum | 3 | 1023 | R114-122-V012-0393 #s 1, 2, & 3 | W137659<br>W137660<br>W137661 |
| Asbestos Abatement Materials | TSCA | Poly bags | 4 | 68 | Asbestos Waste Stream Inventory | [3/] |

1/ Inventory number not yet assigned.
2/ Estimated weight.
3/ Inventory number not used.



000022

007211

**Table 3-3.** Analytical results for tank residue



| Constituent | FERMCO ID. No. | Sample No. 400008 | | FERMCO ID. No. | Sample No. 400009 | | Field Blank FERMCO ID. No. | Field Blank Sample No. 400006 | |
|---|---|---|---|---|---|---|---|---|---|
| **Total Metals** | | (mg/kg) | | | (mg/kg) | | | (μg/l) | |
| Arsenic | 200093999 | 28.4 | U | 200094007 | 5.9 | U | 200093963 | 52.8 | U |
| Barium | 200093999 | 54.6 | | 200094007 | 40.9 | | 200093963 | 0.69 | B |
| Cadmium | 200093999 | 14.5 | | 200094007 | 8.2 | | 200093963 | 3.7 | U |
| Chromium | 200093999 | 180 | | 200094007 | 495 | | 200093963 | 3.4 | U |
| Lead | 200093999 | 424 | | 200094007 | 296 | | 200093963 | 42.3 | U |
| Mercury | 200093999 | 0.08 | B | 200094007 | 0.06 | U | 200093963 | 0.10 | U |
| Selenium | 200093999 | 33 | U | 200094007 | 6.8 | U | 200093963 | 61.4 | U |
| Silver | 200093999 | 2 | U | 200094007 | 0.41 | U | 200093963 | 3.7 | U |
| **TCLP Metals** | | (μg/l) | | | (μg/l) | | | (μg/l) | |
| Arsenic | 200093999 | 38 | U | n/a | n/a | | n/a | n/a | |
| Barium | 200093999 | 349 | | n/a | n/a | | n/a | n/a | |
| Cadmium | 200093999 | 315 | | n/a | n/a | | n/a | n/a | |
| Chromium | 200093999 | 22.9 | | n/a | n/a | | n/a | n/a | |
| Lead | 200093999 | 3800 | | n/a | n/a | | n/a | n/a | |
| Mercury | 200093999 | 1 | U | n/a | n/a | | n/a | n/a | |
| Selenium | 200093999 | 36.7 | U | n/a | n/a | | n/a | n/a | |
| Silver | 200093999 | 3 | U | n/a | n/a | | n/a | n/a | |
| **Total Volatile Organics** | | (μg/kg) | | | (μg/kg) | | | (μg/l) | |
| Vinyl Chloride | 200094002 | 1400000 | U | n/a | n/a | | 200093966 | 10 | U |
| Methylene Chloride | 200094002 | 1000000 | B | n/a | n/a | | 200093966 | 5 | U |
| Acetone | 200094002 | 2400000 | BJ | n/a | n/a | | 200093966 | 100 | U |
| Trichlorofluoromethane | 200094002 | 1400000 | U | n/a | n/a | | 200093966 | 10 | U |
| Carbon Disulfide | 200094002 | 690000 | U | n/a | n/a | | 200093966 | 5 | U |
| 1,1-Dichloroethene | 200094002 | 620000 | J | n/a | n/a | | 200093966 | 5 | U |
| 1,1,2-Trichlorotrifluoroethane | 200094002 | 690000 | U | n/a | n/a | | 200093966 | 5 | U |
| Chloroform | 200094002 | 690000 | U | n/a | n/a | | 200093966 | 15 | |
| 1,2-Dichloroethane | 200094002 | 690000 | U | n/a | n/a | | 200093966 | 5 | U |
| 2-Butanone | 200094002 | 14000000 | U | n/a | n/a | | 200093966 | 100 | U |
| 1,1,1-Trichloroethane | 200094002 | 21000000 | | n/a | n/a | | 200093966 | 5 | U |
| Carbon Tetrachloride | 200094002 | 690000 | U | n/a | n/a | | 200093966 | 5 | U |
| Trichloroethene | 200094002 | 690000 | U | n/a | n/a | | 200093966 | 5 | U |
| 1,1,2-Trichloroethane | 200094002 | 340000 | J | n/a | n/a | | 200093966 | 5 | U |
| Benzene | 200094002 | 690000 | U | n/a | n/a | | 200093966 | 5 | U |
| Bromoform | 200094002 | 690000 | U | n/a | n/a | | 200093966 | 5 | U |
| 4-Methyl-2-Pentanone | 200094002 | 6900000 | U | n/a | n/a | | 200093966 | 50 | U |
| Tetrachloroethene | 200094002 | 690000 | U | n/a | n/a | | 200093966 | 5 | U |

**Table 3-3.** Analytical results for tank residue



| Constituent | FERMCO ID. No. | Sample No. 400008 | | FERMCO ID. No. | Sample No. 400009 | | Field Blank FERMCO ID. No. | Field Blank Sample No. 400006 | |
|---|---|---|---|---|---|---|---|---|---|
| **Total Volatile Organics (cont.)** | | (μg/kg) | | | (μg/kg) | | | (μg/l) | |
| Toluene | 200094002 | 860000 | | n/a | n/a | | 200093966 | 5 | U |
| Chlorobenzene | 200094002 | 690000 | U | n/a | n/a | | 200093966 | 5 | U |
| Ethylbenzene | 200094002 | 690000 | U | n/a | n/a | | 200093966 | 5 | U |
| Xylenes (total) | 200094002 | 690000 | U | n/a | n/a | | 200093966 | 5 | U |
| Cyclohexanone | 200094002 | 21000000 | U | n/a | n/a | | 200093966 | 150 | U |
| Ethyl Acetate | 200094002 | 2800000 | U | n/a | n/a | | 200093966 | 20 | U |
| Diethyl Ether | 200094002 | 2800000 | U | n/a | n/a | | 200093966 | 20 | U |
| **TCLP Volatile Organics** | | | | | (μg/l) | | | | |
| Vinyl Chloride | n/a | n/a | | 200094010 | 100 | U | n/a | n/a | |
| 1,1-Dichloroethene | n/a | n/a | | 200094010 | 50 | U | n/a | n/a | |
| Chloroform | n/a | n/a | | 200094010 | 50 | U | n/a | n/a | |
| 1,2-Dichloroethane | n/a | n/a | | 200094010 | 48 | J | n/a | n/a | |
| 2-Butanone | n/a | n/a | | 200094010 | 570 | | n/a | n/a | |
| Carbon Tetrachloride | n/a | n/a | | 200094010 | 50 | U | n/a | n/a | |
| Trichloroethene | n/a | n/a | | 200094010 | 33 | J | n/a | n/a | |
| Benzene | n/a | n/a | | 200094010 | 50 | U | n/a | n/a | |
| Tetrachloroethene | n/a | n/a | | 200094010 | 14 | J | n/a | n/a | |
| Chlorobenzene | n/a | n/a | | 200094010 | 50 | U | n/a | n/a | |
| **Semi-VOA Analyses** | | (μg/kg) | | | (μg/kg) | | | (μg/l) | |
| Pyridine | 200094001 | 91000 | U | n/a | n/a | | 200093965 | 10 | U |
| 1,4-Dichlorobenzene | 200094001 | 91000 | U | n/a | n/a | | 200093965 | 10 | U |
| 2-Methylphenol | 200094001 | 91000 | U | n/a | n/a | | 200093965 | 10 | U |
| 4-Methylphenol | 200094001 | 50000 | J | n/a | n/a | | 200093965 | 10 | U |
| Hexachloroethane | 200094001 | 91000 | U | n/a | n/a | | 200093965 | 10 | U |
| Nitrobenzene | 200094001 | 91000 | U | n/a | n/a | | 200093965 | 10 | U |
| Hexachlorobutadiene | 200094001 | 91000 | U | n/a | n/a | | 200093965 | 10 | U |
| 2,4,6-Tricholorophenol | 200094001 | 91000 | U | n/a | n/a | | 200093965 | 10 | U |
| 2,4,5-Tricholorophenol | 200094001 | 91000 | U | n/a | n/a | | 200093965 | 10 | U |
| 2,4-Dinitrotoluene | 200094001 | 91000 | U | n/a | n/a | | 200093965 | 10 | U |
| Hexachlorobenzene | 200094001 | 91000 | U | n/a | n/a | | 200093965 | 10 | U |
| Pentachlorophenol | 200094001 | 450000 | U | n/a | n/a | | 200093965 | 50 | U |
| **Total Herbicide Analyses** | | (μg/kg) | | | (μg/kg) | | | | |
| 2,4-D | 200094000 | 240 | U | 200094008 | 240 | U | 200093964 | 12 | U |
| 2,4,5-TP | 200094000 | 73 | | 200094008 | 73 | U | 200093964 | 1.7 | U |

**Table 3-3.** Analytical results for tank residue



| Constituent | FERMCO ID. No. | Sample No. 400008 | | FERMCO ID. No. | Sample No. 400009 | | Field Blank FERMCO ID. No. | Field Blank Sample No. 400006 | |
|---|---|---|---|---|---|---|---|---|---|
| **Total PCB Analyses** | | (μg/kg) | | | | | | (μg/l) | |
| Aroclor-1221 | 200094005 | 330 | U | n/a | n/a | | 200093969 | 1.0 | U |
| Aroclor-1232 | 200094005 | 330 | U | n/a | n/a | | 200093969 | 1.0 | U |
| Aroclor-1242/1016 | 200094005 | 330 | U | n/a | n/a | | 200093969 | 1.0 | U |
| Aroclor-1248 | 200094005 | 330 | U | n/a | n/a | | 200093969 | 1.0 | U |
| Aroclor-1254 | 200094005 | 330 | U | n/a | n/a | | 200093969 | 1 | U |
| Aroclor-1260 | 200094005 | 3600 | | n/a | n/a | | 200093969 | 1.0 | U |
| **Radiological Analyses** | | | | | | | | | |
| BRP ADAP U (μg/g) | 200094003 | 700 | | 1/ | 1/ | | 200093967 | 0.1 | U |
| Total Th (ppm) | 200094004 | 45 | U | 200094012 | 45 | U | 200093968 | 0.1 | U |
| | | (pCi/g) | | | (pCi/g) | | | (pCi/ml) | |
| Alpha | 200094006 | 390 | | 200094014 | 450 | | 200093970 | 0.16 | U |
| Beta | 200094006 | 500 | | 200094014 | 520 | | 200093970 | 0.32 | U |

B = Constituent detected in blank
U = Undetected
J = Value is an estimate
n/a = No sampling or testing for this parameter was done.
1/ Insufficient sample quantity was available for analysis.

the samples immediately following sampling due to an error in the analytical request to the outside laboratory. However, the analytical request was corrected to include TCLP analyses for metals and semivolatile compounds which were then completed on remaining material from the original samples. The results from these analyses are included in Table 3-4. Low levels of 1,1,1-trichloroethane were detected in the concrete as well as PCBs and uranium.

### 3.2.3 Decontamination Fluids

Decontamination fluids were generated during the decontamination activities described in Section 2.13. The results of sampling and analyses on the decontamination fluids are listed in Table 3-5. Copies of the laboratory reports are included in Attachment D, Item 2. Two samples of decontamination fluid were collected and analyzed for total metals, total VOAs, total semivolatiles, herbicides, and radiological analysis. Analyses for total concentrations rather than TCLP concentrations were performed on these samples. The significant difference between these analytical methods is that for a TCLP analysis on a sample with less than 0.5 percent solids, the sample is first prefiltered through a 0.6 to 0.8 $\mu$m glass fiber filter prior to analysis. The filtered solids are then not included in the analysis for TCLP constituents. Because of this difference, the analysis for the total concentration rather than TCLP concentration would result in an equal or higher analytical result. The total metals results listed in Table 3-5 indicate that TCLP levels are exceeded for lead. Low levels of 1,1,1-trichloroethane and 4-methylphenol were detected in the decontamination fluid as well as PCBs and uranium.

As described in Table 2-1, the concentrations of CPID COCs in the decontamination rinsate are below the clean closure levels for decontamination rinsate. In addition, the surfaces which were decontaminated are metal surfaces that are impermeable to the COCs. Finally, with the exception of chromium, the COCs are volatile compounds which would not exist on an impermeable metal surface for any significant period of time before volatilizing. For these reasons, the surfaces that were decontaminated as described in Section 2.13 are considered to be clean by the certifying engineer.

**Table 3-4.** Analytical results for scabbled concrete



| Constituent | FERMCO ID. No. | Sample No. 400004 | | FERMCO ID. No. | Sample No. 400005 | | Field Blank FERMCO ID. No. | Field Blank Sample No. 400002 | |
|---|---|---|---|---|---|---|---|---|---|
| **Total Metals** | | (mg/kg) | | | (mg/kg) | | | (μg/l) | |
| Arsenic | 200093937 | 33.7 | B | 200093950 | 35.1 | B | 200093927 | 45.6 | U |
| Barium | 200093937 | 76.0 | | 200093950 | 81.9 | | 200093927 | 1.0 | U |
| Cadmium | 200093937 | 16.3 | | 200093950 | 14.9 | | 200093927 | 1.5 | U |
| Chromium | 200093937 | 96.7 | | 200093950 | 82.1 | | 200093927 | 5.3 | U |
| Lead | 200093937 | 76.8 | | 200093950 | 67.4 | | 200093927 | 32.4 | U |
| Mercury | 200093937 | 0.06 | B | 200093950 | 0.05 | B | 200093927 | 0.10 | U |
| Selenium | 200093937 | 38.1 | | 200093950 | 30.7 | | 200093927 | 41.9 | U |
| Silver | 200093937 | 5.1 | | 200093950 | 5.1 | | 200093927 | 3.8 | U |
| **TCLP Metals** | | (μg/l) | | | (μg/l) | | | (μg/l) | |
| Arsenic | 200093937 | 339 | U | 200093950 | 339 | U | n/a | n/a | |
| Barium | 200093937 | 278 | B | 200093950 | 209 | B | n/a | n/a | |
| Cadmium | 200093937 | 15.2 | U | 200093950 | 15.2 | U | n/a | n/a | |
| Chromium | 200093937 | 11.6 | U | 200093950 | 11.6 | U | n/a | n/a | |
| Lead | 200093937 | 148 | U | 200093950 | 148 | U | n/a | n/a | |
| Mercury | 200093937 | 1 | U | 200093950 | 1 | U | n/a | n/a | |
| Selenium | 200093937 | 399 | U | 200093950 | 399 | U | n/a | n/a | |
| Silver | 200093937 | 15.2 | U | 200093950 | 15.2 | U | n/a | n/a | |
| **Total Volatile Organics** | | (μg/kg) | | | (μg/kg) | | | (μg/l) | |
| Vinyl Chloride | 200093940 | 10 | U | 200093953 | 10 | U | 200093930 | 10 | U |
| Methylene Chloride | 200093940 | 5 | U | 200093953 | 5 | U | 200093930 | 2 | BJ |
| Acetone | 200093940 | 28 | BJ | 200093953 | 27 | BJ | 200093930 | 16 | BJ |
| Trichlorofluoromethane | 200093940 | 10 | U | 200093953 | 10 | U | 200093930 | 10 | U |
| Carbon Disulfide | 200093940 | 5 | U | 200093953 | 5 | U | 200093930 | 5 | U |
| 1,1-Dichloroethene | 200093940 | 5 | U | 200093953 | 5 | U | 200093930 | 5 | U |
| 1,1,2-Trichlorotrifluoroethane | 200093940 | 5 | U | 200093953 | 5 | U | 200093930 | 5 | U |
| Chloroform | 200093940 | 5 | U | 200093953 | 5 | U | 200093930 | 2 | J |
| 1,2-Dichloroethane | 200093940 | 5 | U | 200093953 | 5 | U | 200093930 | 5 | U |
| 2-Butanone | 200093940 | 100 | U | 200093953 | 100 | U | 200093930 | 100 | U |
| 1,1,1-Trichloroethane | 200093940 | 70 | | 200093953 | 72 | | 200093930 | 5 | U |
| Carbon Tetrachloride | 200093940 | 5 | U | 200093953 | 5 | U | 200093930 | 5 | U |
| Trichloroethene | 200093940 | 5 | U | 200093953 | 5 | U | 200093930 | 5 | U |
| 1,1,2-Trichloroethane | 200093940 | 5 | U | 200093953 | 5 | U | 200093930 | 5 | U |
| Benzene | 200093940 | 5 | U | 200093953 | 5 | U | 200093930 | 5 | U |
| Bromoform | 200093940 | 5 | U | 200093953 | 5 | U | 200093930 | 5 | U |
| 4-Methyl-2-Pentanone | 200093940 | 52 | U | 200093953 | 51 | U | 200093930 | 50 | U |
| Tetrachloroethene | 200093940 | 6 | | 200093953 | 5 | J | 200093930 | 5 | U |

**Table 3-4.** Analytical results for scabbled concrete



| Constituent | FERMCO ID. No. | Sample No. 400004 | | FERMCO ID. No. | Sample No. 400005 | | Field Blank FERMCO ID. No. | Field Blank Sample No. 400002 | |
|---|---|---|---|---|---|---|---|---|---|
| **Total Volatile Organics (cont.)** | | (μg/kg) | | | (μg/kg) | | | (μg/l) | |
| Toluene | 200093940 | 1 | J | 200093953 | 1 | J | 200093930 | 5 | U |
| Chlorobenzene | 200093940 | 5 | U | 200093953 | 5 | U | 200093930 | 5 | U |
| Ethylbenzene | 200093940 | 5 | U | 200093953 | 5 | U | 200093930 | 5 | U |
| Xylenes (total) | 200093940 | 5 | U | 200093953 | 5 | U | 200093930 | 5 | U |
| Cyclohexanone | 200093940 | 150 | U | 200093953 | 150 | U | 200093930 | 150 | U |
| Ethyl Acetate | 200093940 | 21 | U | 200093953 | 20 | U | 200093930 | 20 | U |
| Diethyl Ether | 200093940 | 21 | U | 200093953 | 20 | U | 200093930 | 20 | U |
| **TCLP Semi-VOA Analyses** | | (μg/l) | | | (μg/l) | | | (μg/l) | |
| Pyridine | 200093939 | 40 | U | 200093952 | 40 | U | n/a | n/a | |
| 1,4-Dichlorobenzene | 200093939 | 40 | U | 200093952 | 40 | U | n/a | n/a | |
| 2-Methylphenol | 200093939 | 6 | J | 200093952 | 4 | J | n/a | n/a | |
| 4-Methylphenol | 200093939 | 480 | E | 200093952 | 510 | E | n/a | n/a | |
| Hexachloroethane | 200093939 | 40 | U | 200093952 | 40 | U | n/a | n/a | |
| Nitrobenzene | 200093939 | 40 | U | 200093952 | 40 | U | n/a | n/a | |
| Hexachlorobutadiene | 200093939 | 40 | U | 200093952 | 40 | U | n/a | n/a | |
| 2,4,6-Tricholorophenol | 200093939 | 40 | U | 200093952 | 40 | U | n/a | n/a | |
| 2,4,5-Tricholorophenol | 200093939 | 40 | U | 200093952 | 40 | U | n/a | n/a | |
| 2,4-Dinitrotoluene | 200093939 | 40 | U | 200093952 | 40 | U | n/a | n/a | |
| Hexachlorobenzene | 200093939 | 40 | U | 200093952 | 40 | U | n/a | n/a | |
| Pentachlorophenol | 200093939 | 17 | J | 200093952 | 200 | U | n/a | n/a | |
| **Total Semi-VOA Analyses** | | (μg/kg) | | | (μg/kg) | | | (μg/l) | |
| Pyridine | 200093939 | 8400 | U | 200093952 | 8300 | U | 200093929 | 10 | U |
| 1,4-Dichlorobenzene | 200093939 | 8400 | U | 200093952 | 8300 | U | 200093929 | 10 | U |
| 2-Methylphenol | 200093939 | 8400 | U | 200093952 | 8300 | U | 200093929 | 10 | U |
| 4-Methylphenol | 200093939 | 9900 | | 200093952 | 6100 | J | 200093929 | 10 | U |
| Hexachloroethane | 200093939 | 8400 | U | 200093952 | 8300 | U | 200093929 | 10 | U |
| Nitrobenzene | 200093939 | 8400 | U | 200093952 | 8300 | U | 200093929 | 10 | U |
| Hexachlorobutadiene | 200093939 | 8400 | U | 200093952 | 8300 | U | 200093929 | 10 | U |
| 2,4,6-Tricholorophenol | 200093939 | 8400 | U | 200093952 | 8300 | U | 200093929 | 10 | U |
| 2,4,5-Tricholorophenol | 200093939 | 8400 | U | 200093952 | 8300 | U | 200093929 | 10 | U |
| 2,4-Dinitrotoluene | 200093939 | 8400 | U | 200093952 | 8300 | U | 200093929 | 10 | U |
| Hexachlorobenzene | 200093939 | 8400 | U | 200093952 | 8300 | U | 200093929 | 10 | U |
| Pentachlorophenol | 200093939 | 41000 | U | 200093952 | 40000 | U | 200093929 | 50 | U |

**Table 3-4.** Analytical results for scabbled concrete



| Constituent | FERMCO ID. No. | Sample No. 400004 | | FERMCO ID. No. | Sample No. 400005 | | Field Blank FERMCO ID. No. | Field Blank Sample No. 400002 | |
|---|---|---|---|---|---|---|---|---|---|
| **Total Herbicide Analyses** | | (μg/kg) | | | (μg/kg) | | | (μg/l) | |
| 2,4-D | 200093938 | 240 | U | 2.00e+08 | 1/ | | 200093928 3/ | 12 | U |
| 2,4,5-TP | 200093938 | 35 | U | 2.00e+08 | 1/ | | 200093928 3/ | 1.7 | U |
| **Total PCB Analyses** | | (μg/kg) | | | (μg/kg) | | | (μg/l) | |
| Aroclor-1221 | 200093943 | 3400 | U | 200093951 | 3400 | U | 20093933 | \2 | |
| Aroclor-1232 | 200093943 | 3400 | | 200093951 | 3400 | | 20093933 | \2 | |
| Aroclor-1242/1016 | 200093943 | 3400 | U | 200093951 | 3400 | U | 20093933 | \2 | |
| Aroclor-1248 | 200093943 | 66000 | | 200093951 | 104000 | | 20093933 | \2 | |
| Aroclor-1254 | 200093943 | 40000 | | 200093951 | 83000 | | 20093933 | \2 | |
| Aroclor-1260 | 200093943 | 3400 | U | 200093951 | 3400 | U | 20093933 | \2 | |
| **Other Analysis** | | | | | | | | | |
| TOX (μg/g) | 2.00e+08 | 72.6 | | 2.00e+08 | 79.6 | | n/a | n/a | |
| Sulfide (μg/g) | 2.00e+08 | 11.1 | U | 2.00e+08 | 11.0 | U | n/a | n/a | |
| Paint Filter Test | 2.00e+08 | Pass | | 2.00e+08 | Pass | | n/a | n/a | |
| pH | 2.00e+08 | 11.62 | | 2.00e+08 | 11.50 | | n/a | n/a | |
| Cyanide (μg/g) | 2.00e+08 | 0.51 | U | 2.00e+08 | 0.51 | U | n/a | n/a | |
| **Radiological Analysis** | | (μg/g) | | | (μg/g) | | | (mg/l) | |
| Total U/BRP ADAP U | 200093941 | 331 | | 200093954 | 183.7 | | 2.00e+08 | 0.1 | U |
| Total Th | 200093942 | 18 | U | 200093955 | 18 | U | 2.00e+08 | 0.4 | U |
| | | (percent $H_2O$) | | | (percent $H_2O$) | | | (percent $H_2O$) | |
| Thorium | 200093942 | 2.6 | | 200093955 | 2.6 | | n/a | n/a | |
| Uranium | 200093941 | 2.7 | | 200093954 | 2.7 | | n/a | n/a | |
| Alpha | 200093949 | 140 | | 200093961 | 140 | | 2.00e+08 | 0.29 | U |
| Beta | 200093949 | 130 | | 200093961 | 120 | | 2.00e+08 | 0.59 | U |
| **Radiochemical Analysis** | | (pCi/g) | | | (pCi/g) | | | | |
| Antimony 125 | 200093948 | 6.90e-03 | U | 200093960 | 6.90e-03 | U | n/a | n/a | |
| Barium 133 | 200093948 | 2.90e-03 | U | 200093960 | 3.00e-03 | U | n/a | n/a | |
| Cerium 144 | 200093948 | 7.80e-03 | U | 200093960 | 7.90e-03 | U | n/a | n/a | |
| Cesium 134 | 200093948 | 2.70e-03 | U | 200093960 | 2.80e-03 | U | n/a | n/a | |
| Cesium 137 | 200093948 | 3.50e-01 | | 200093960 | 3.20e-01 | | n/a | n/a | |
| Cobalt 57 | 200093948 | 9.80e-04 | U | 200093960 | 9.80e-04 | U | n/a | n/a | |
| Cobalt 60 | 200093948 | 4.50e-03 | U | 200093960 | 4.50e-03 | U | n/a | n/a | |
| Manganese 54 | 200093948 | 3.30e-03 | U | 200093960 | 3.30e-03 | U | n/a | n/a | |
| Neptunium 237 | 200093948 | 4.30e-03 | U | 200093960 | 4.30e-03 | U | n/a | n/a | |
| Potassium 40 | 200093948 | 1.10e+01 | | 200093960 | 9.90e+00 | | n/a | n/a | |

**Table 3-4.** Analytical results for scabbled concrete



| Constituent | FERMCO ID. No. | Sample No. 400004 | | FERMCO ID. No. | Sample No. 400005 | | Field Blank FERMCO ID. No. | Field Blank Sample No. 400002 |
|---|---|---|---|---|---|---|---|---|
| **Radiochemical Analysis (cont.)** | | (pCi/g) | | | (pCi/g) | | | |
| Radium 226 | 200093948 | 5.00e+00 | | 200093960 | 6.70e+00 | | n/a | n/a |
| Ruthenium 106 | 200093948 | 2.70e-02 | U | 200093960 | 2.80e-02 | U | n/a | n/a |
| Thorium 232 | 200093948 | 5.20e-01 | | 200093960 | 9.60e-01 | | n/a | n/a |
| Uranium 235 | 200093948 | 7.10e+00 | | 200093960 | 1.20e+01 | | n/a | n/a |
| Uranium 238 | 200093948 | 9.60e+01 | | 200093960 | 1.60e+02 | | n/a | n/a |
| Zinc 65 | 200093948 | 8.40e-03 | U | 200093960 | 8.50e-03 | U | n/a | n/a |

B = Constituent detected in blank
U = Undetected
J = Value is an estimate
n/a = No sampling or testing for this parameter was done.
1/ Sample was analyzed for PCBs instead of herbicides.
2/ Insufficient sample quantity was received by laboratory for analysis.
3/ Sample analyzed was 200093929.

**Table 3-5.** Analytical results for decontamination fluids



| Constituent | FERMCO ID No. | Sample No. 400000 (μg/l) | | FERMCO ID No. | Sample No. 400001 (μg/l) | | Field Blank FERMCO ID No. | Field Blank Sample No. 400010 (μg/l) | |
|---|---|---|---|---|---|---|---|---|---|
| **Total Metals** | | | | | | | | | |
| Arsenic | 200093911 | 45.6 | U | 200093919 | 45.6 | U | 200094015 | 45.6 | U |
| Barium | 200093911 | 707 | B | 200093919 | 1300 | B | 200094015 | 5.6 | B |
| Cadmium | 200093911 | 20.4 | | 200093919 | 20.9 | | 200094015 | 1.5 | U |
| Chromium | 200093911 | 400 | | 200093919 | 376 | | 200094015 | 5.3 | U |
| Lead | 200093911 | 8910 | | 200093919 | 11000 | | 200094015 | 423 | U |
| Mercury | 200093911 | 1.0 | | 200093919 | 1.0 | | 200094015 | 0.35 | |
| Selenium | 200093911 | 41.9 | U | 200093919 | 41.9 | U | 200094015 | 41.9 | U |
| Silver | 200093911 | 37 | U | 200093919 | 37.0 | U | 200094015 | 37.0 | U |
| **Total Volatile Organics** | | | | | | | | | |
| Vinyl Chloride | 200093914 | 10 | U | 200093922 | 10 | U | 200094018 | 10 | U |
| Methylene Chloride | 200093914 | 5 | U | 200093922 | 5 | U | 200094018 | 5 | U |
| Acetone | 200093914 | 100 | U | 200093922 | 17 | J[1/] | 200094018 | 100 | U |
| Trichlorofluoromethane | 200093914 | 10 | U | 200093922 | 10 | U | 200094018 | 10 | U |
| Carbon Disulfide | 200093914 | 5 | U | 200093922 | 5 | U | 200094018 | 5 | U |
| 1,1-Dichloroethene | 200093914 | 2 | J | 200093922 | 3 | J | 200094018 | 5 | U |
| 1,1,2-Trichlorotrifluoroethane | 200093914 | 5 | U | 200093922 | 5 | U | 200094018 | 5 | U |
| Chloroform | 200093914 | 5 | U | 200093922 | 5 | U | 200094018 | 14 | |
| 1,2-Dichloroethane | 200093914 | 5 | U | 200093922 | 5 | U | 200094018 | 5 | U |
| 2-Butanone | 200093914 | 100 | U | 200093922 | 11 | J | 200094018 | 100 | U |
| 1,1,1-Trichloroethane | 200093914 | 9 | | 200093922 | 6 | | 200094018 | 5 | U |
| Carbon Tetrachloride | 200093914 | 5 | U | 200093922 | 5 | U | 200094018 | 5 | U |
| Trichloroethene | 200093914 | 5 | U | 200093922 | 5 | U | 200094018 | 5 | U |
| 1,1,2-Trichloroethane | 200093914 | 5 | U | 200093922 | 5 | U | 200094018 | 5 | U |
| Benzene | 200093914 | 5 | U | 200093922 | 5 | U | 200094018 | 5 | U |
| Bromoform | 200093914 | 5 | U | 200093922 | 5 | U | 200094018 | 5 | U |
| 4-Methyl-2-Pentanone | 200093914 | 50 | U | 200093922 | 50 | U | 200094018 | 50 | U |
| Tetrachloroethene | 200093914 | 5 | U | 200093922 | 5 | U | 200094018 | 5 | U |
| Toluene | 200093914 | 5 | U | 200093922 | 5 | U | 200094018 | 5 | U |
| Chlorobenzene | 200093914 | 5 | U | 200093922 | 5 | U | 200094018 | 5 | U |
| Ethylbenzene | 200093914 | 5 | U | 200093922 | 1 | J | 200094018 | 5 | U |
| Xylenes (total) | 200093914 | 3 | J | 200093922 | 5 | U | 200094018 | 5 | U |
| Cyclohexanone | 200093914 | 150 | U | 200093922 | 150 | U | 200094018 | 150 | U |
| Ethyl Acetate | 200093914 | 20 | U | 200093922 | 20 | U | 200094018 | 20 | U |
| Diethyl Ether | 200093914 | 20 | U | 200093922 | 20 | U | 200094018 | 20 | U |

**Table 3-5.** Analytical results for decontamination fluids



| Constituent | FERMCO ID No. | Sample No. 400000 (μg/l) | | FERMCO ID No. | Sample No. 400001 (μg/l) | | Field Blank: FERMCO ID No. | Field Blank: Sample No. 400010 (μg/l) | |
|---|---|---|---|---|---|---|---|---|---|
| **Total Semi-VOA Analyses** | | | | | | | | | |
| Pyridine | 200093913 | 10 | U | 200093921 | 20 | U | 200094017 | 10 | U |
| 1,4-Dichlorobenzene | 200093913 | 10 | U | 200093921 | 20 | U | 200094017 | 10 | U |
| 2-Methylphenol | 200093913 | 10 | U | 200093921 | 20 | U | 200094017 | 10 | U |
| 4-Methylphenol | 200093913 | 30 | | 200093921 | 68 | | 200094017 | 10 | U |
| Hexachloroethane | 200093913 | 10 | U | 200093921 | 20 | U | 200094017 | 10 | U |
| Nitrobenzene | 200093913 | 10 | U | 200093921 | 20 | U | 200094017 | 10 | U |
| Hexachlorobutadiene | 200093913 | 10 | U | 200093921 | 20 | U | 200094017 | 10 | U |
| 2,4,6-Tricholorophenol | 200093913 | 10 | U | 200093921 | 20 | U | 200094017 | 10 | U |
| 2,4,5-Tricholorophenol | 200093913 | 10 | U | 200093921 | 20 | U | 200094017 | 10 | U |
| 2,4-Dinitrotoluene | 200093913 | 10 | U | 200093921 | 20 | U | 200094017 | 10 | U |
| Hexachlorobenzene | 200093913 | 10 | U | 200093921 | 20 | U | 200094017 | 10 | U |
| Pentachlorophenol | 200093913 | 50 | U | 200093921 | 100 | U | 200094017 | 50 | U |
| **Total Herbicide Analyses** | | | | | | | | | |
| 2,4-D | 200093912 | 12 | U | 200093920 | 12 | U | 200094016 | 12 | U |
| 2,4,5-TP | 200093912 | 1.7 | U | 200093920 | 1.7 | U | 200094016 | 1.7 | U |
| **Total PCB Analyses** | | | | | | | | | |
| Aroclor-1221 | 200093913 | 1.0 | U | 200093921 | 1.0 | U | 200094017 | 1.0 | U |
| Aroclor-1232 | 200093913 | 1.0 | U | 200093921 | 1.0 | U | 200094017 | 1.0 | U |
| Aroclor-1242/1016 | 200093913 | 1.0 | U | 200093921 | 1.0 | U | 200094017 | 1.0 | U |
| Aroclor-1248 | 200093913 | 13 | | 200093921 | 22 | | 200094017 | 1.0 | U |
| Aroclor-1254 | 200093913 | 15 | | 200093921 | 28 | | 200094017 | 1.0 | U |
| Aroclor-1260 | 200093913 | 7 | | 200093921 | 3.6 | | 200094017 | 1.0 | U |
| **Radiological Analyses** | | | | | | | | | |
| BRP ADAP U (mg/l) | 200093915 | 20.5 | | 200093923 | 20.6 | | 200094019 | 0.2 | U |
| Total Th (mg/l) | 200093916 | 0.4 | U | 200093924 | 0.4 | U | 200094021 | 0.4 | U |
| Alpha (pCi/ml) | 200093918 | 13 | | 200094026 | 12 | | 200094023 | 0.11 | U |
| Beta (pCi/ml) | 200093918 | 9.7 | | 200094026 | 520 | | 200094023 | 0.22 | U |

B = Constituent detected in blank
U = Undetected
J = Value is an estimate
1/ Constituent is a common laboratory contaminant. Reported value is below calibrated method detection limit and could be attributed to laboratory contamination.

# 4.0 CERTIFICATION STATEMENTS

The following pages are the FEMP closure certification statements (following the format in OAC 3745-50-42 (D)) and a Professional Engineer's (P.E.) certification statement documenting that HWMU No. 26, the Detrex Still, was closed in accordance with the approved closure plan, as required under OAC 3745-66-15.

# INDEPENDENT ENGINEER'S CERTIFICATION STATEMENT

I hereby certify that the Detrex Still Hazardous Waste Management Unit No. 26 at DOE's Fernald Environmental Management Project has been closed in accordance with the specifications in the CPID, as revised in March 1994, except for the deviations outlined below. Closure activities were initiated and completed based upon the CPID as modified based upon the OEPA review comments dated February 1, 1994. FERMCO is currently awaiting OEPA approval of the modified CPID which was sent to OEPA on March 2, 1994. Copies of the correspondence concerning this matter are included in Attachment A. As noted in Section 3.1, storage and final disposal of the waste streams generated by this closure action are not included in this Closure Certification Report.

The deviations associated with closure of the HWMU are as follows:

A. The distillation residues were not removed from the interior of the still tank as noted in Section 2.8.

B. Some of the concrete floor area which was scabbled was not within the Detrex Still HWMU boundaries as noted in Section 2.11.

C. No sampling was done of the material collected during the third concrete scabbling pass as noted in Section 2.10.

D. The interior of the condenser cooling water jacket was not opened for visual inspection and verification of a clean debris surface as noted in Section 2.13.

E. The paint was not removed during decontamination of the still support structure as noted in Section 2.13 and a clean debris surface was therefore not achieved. However, the analysis of the decontamination rinsate shows that COCs present in the rinsate are below the Clean Closure Limits. The structure is considered by the certifying engineer to be clean as described in Sections 2.13 and 3.2.3.

F. Deviations in the sampling and analysis occurred as noted in Section 3.2.

David T. Johnson, P.E.
Ohio Registration No. 58114
Foster Wheeler Environmental Corporation

STATE OF OHIO
DAVID T. JOHNSON
58114
REGISTERED PROFESSIONAL ENGINEER

# CERTIFICATION OF CO-OPERATOR

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Fernald Environmental Restoration
Management Corporation, Co-Operator

13 Sept 95
Date Signed

# CERTIFICATION OF OWNER AND OPERATOR

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

U.S. Department of Energy, Fernald Office
Owner and Operator

9/21/95
Date Signed

# APPENDIX 1

# CLOSURE PLAN APPROVAL

OhioEPA
State of Ohio Environmental Protection Agency

P.O. Box 1049, 1800 WaterMark Dr.
Columbus, Ohio 43266-0149
) 644-3020
(614) 644-2329

007211

George V. Voinovich
Governor

Donald R. Schregardus
Director

CLOSURE PLAN APPROVAL

CERTIFIED MAIL

July 20, 1995

RE: CLOSURE PLAN APPROVAL
U.S. DOE-FEMP
OH6890008976

Mr. J. Phil Hamric
Site Manager
U.S. DOE-FEMP
P.O. Box 398705
Cincinnati, Ohio 45239-8705

Dear Mr. Hamric:

On April 22, 1993, U.S. Department of Energy - Fernald Environmental Management Project (DOE-FEMP) submitted to Ohio EPA a closure plan for Hazardous Waste Management Unit #26 (Detrex Still), an unpermitted storage unit located at 7400 Willey Road, Fernald, Ohio. Revisions to the closure plan were submitted on March 2, 1994 and again on April 6, 1995. The closure plan was submitted pursuant to Rule 3745-66-12 of the Ohio Administrative Code (OAC) in order to demonstrate that DOE-FEMP's proposal for closure complies with the requirements of OAC Rules 3745-66-11 and 3745-66-12.

The public was given the opportunity to submit written comments regarding the closure plan of DOE-FEMP in accordance with OAC Rule 3745-66-12. No comments were received by Ohio EPA in this matter.

Based upon review of DOE-FEMP's submittal and subsequent revisions, I conclude that the closure plan for the hazardous waste facility at 7400 Willey Road, Fernald, Ohio meets the performance standard contained in OAC 3745-66-11 and complies with the pertinent parts of OAC Rule 3745-66-12.

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: Mary Cavin Date 7-25-95

OHIO E.P.A.
JUL 25 95
...RED DIRECTOR'S JOURNAL

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. J.P.Hamric
E-FEMP
e Two

e closure plan submitted to Ohio EPA on November 5, 1993 by
E-FEMP is hereby approved.

ease be advised that approval of this closure plan does not
lease DOE-FEMP from any responsibilities as required under the
zardous and Solid Waste Amendments of 1984 regarding corrective
tions for all releases of hazardous waste or constituents from
y solid waste management unit, regardless of the time at which
ste was placed in the unit.

twithstanding compliance with the terms of the closure plan,
e Director may, on the basis of any information that there is
has been a release of hazardous waste, hazardous constituents,
hazardous substances into the environment, issue an order
rsuant to Section 3734.20 et seq of the Revised Code or
apters 3734 or 6111 of the Revised Code requiring corrective
tion or such other response as deemed necessary; or initiate
propriate action; or seek any appropriate legal or equitable
medies to abate pollution or contamination or to protect public
alth or safety or the environment.

thing here shall waive the right of the Director to take action
yond the terms of the closure plan pursuant to the
rehensive Environmental Response, Compensation and Liability
of 1980, 42 U.S.C. § 9601 et seq., as amended by the
perfund Amendments and Reauthorization Act of 1986, Pub. L. 99-
9 ("CERCLA") or to take any other action pursuant to applicable
deral or State law, including but not limited to the right to
sue a permit with terms and conditions requiring corrective
tion pursuant to Chapters 3734 or 6111 of the Revised Code; the
ght to seek injunctive relief, monetary penalties and punitive
mages; to undertake any removal, remedial, and/or response
tion relating to the facility; and to seek recovery for any
sts incurred by the Director in undertaking such actions.

u are notified that this action of the Director is final and
y be appealed to the Environmental Board of Review pursuant to
ction 3745.04 of the Ohio Revised Code. The appeal must be in
iting and set forth the action complained of and the grounds
on which the appeal is based. It must be filed with the
vironmental Board of Review within thirty (30) days after
tice of the Director's action. A copy of the appeal must be

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: Mary Cavin Date 7-25-95

OHIO E.P.A.
JUL 25 95
ENTERED DIRECTOR'S JOURNAL

served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the Board. An appeal may be filed with the Environmental Board of Review at the following address: Environmental Board of Review, 236 East Town Street, Room 300,Columbus, Ohio 43266-0557.

When closure is completed, the Ohio Administrative Code Rule 3745-66-15 requires the owner or operator of a facility to submit to the Director of the Ohio EPA certification by the owner or operator and an independent, registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan. These certifications shall follow the format specified in OAC 3745-50-42(D), and should be submitted to: Ohio Environmental Protection Agency, Division of Hazardous Waste Management, Attention: Tom Crepeau, Data Management Section, P.O. Box 1049, Columbus, Ohio 43266-0149.

Sincerely,

Donald R. Schregardus
Director

cc: Tom Crepeau, OEPA, DHWM Central File
Montee Suleiman, OEPA, DHWM, CO
Harriet Croke, Ohio Permit Section, USEPA, Region V
Harold O'Connell, OEPA, Southwest District Office
Bob Danner, DOE-FEMP

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: Mary Cavin Date 7-25-95

OHIO E.P.A.
JUL 25 95
ENTERED DIRECTOR'S JOURNAL

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FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

# Hazardous Waste Management Unit No. 26 Closure Certification Report for the Detrex Still

## Attachments A to C
### Volume 1 of 2

September 1995

U.S. DEPARTMENT OF ENERGY

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# Hazardous Waste Management Unit No. 26
# Closure Certification Report
# for the
# Detrex Still

## Attachments A to C
## Volume 1 of 2

Fernald Environmental Management Project

September 1995

**U.S. DEPARTMENT OF ENERGY**

000043

# CONTENTS


| | |
|---|---|
| ATTACHMENT A | CORRESPONDENCE |
| ATTACHMENT B | ASBESTOS ABATEMENT DOCUMENTATION |
| ATTACHMENT C | SAMPLING DOCUMENTATION |

# ATTACHMENT A

# CORRESPONDENCE

007211

c26

ENV. ENG. SDS DEPT


**Department of Energy**
**Fernald Environmental Management Project**
P.O. Box 398705
Cincinnati, Ohio 45239-8705
(513) 738-6357


MAY 24 11 19 AM '94

NOV 0 5 1993

DOE-0261-94

Donald R. Schregardus, Director
Ohio Environmental Protection Agency
P. O. Box 1049
1800 WaterMark Drive
Columbus, Ohio 43266-0149

RECORD COPY

**CLOSURE PLAN INFORMATION AND DATA FOR THE DETREX STILL**

Enclosed for your review and approval is the Closure Plan Information and Data (CPID) for the Detrex Still, Hazardous Waste Management Unit (HWMU) No.26 at the Fernald Environmental Management Project (FEMP). As described in the CPID, it is the intention of the FEMP to clean close this unit.

If you have any questions or comments, please contact John Sattler at 513-648-3145.

Sincerely,

J. Phil Hamric
Manager

FN:Sattler

Enclosure: As Stated

cc w/enc:

K. A. Chaney, EM-424 TREV
J. A. Saric, USEPA-Region V
R. Fisher, OEPA-Dayton
D. A. Howe, FERMCO/30 RCRA Operating Record

cc w/o enc:

M. McDermontt, DOJ
J. Van Kley, Ohio AGO
G. E. Mitchell, OEPA-Dayton
N. C. Kaufman, FERMCO/1
J. W. Theising, FERMCO/2
K. A. Alkema, FERMCO/65-2
P. F. Clay, FERMCO/19

CONTROL NO.:
SD NO.:
REVISION:
SUPERSEDES:
ISSUE DATE:
REVISION DATE:

000046

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OhioEPA
State of Ohio Environmental Protection Agency
P.O. Box 1049, 1800 WaterMark Dr.
Columbus, Ohio 43266-0149
(614) 644-3020
FAX (614) 644-2329

H-2197

ENV. ENG. SDS DEPT

FEB 11 12 27 PM '94

George V. Voinc
Gove
Donald R. Schrega
Dire

February 1, 1994

NOTICE OF DEFICIENCY

CERTIFIED MAIL

RECORD COPY

RE: CLOSURE PLAN
U.S DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL
MANAGEMENT PROJECT
(DOE-FEMP)
OH6 890 008 976
05-31-0681

Mr. J. Phil Hamric, Manager
Fernald Office
U.S. DOE-FEMP
P.O. Box 398705
Cincinnati, Ohio 45239-8705

Dear Mr. Hamric:

On November 10, 1993, Ohio EPA received from the U.S. Department of Energy-Fernald Environmental Management Project a closure plan for Hazardous Waste Management Unit #26 (Detrex Still), an unpermitted storage unit located at 7400 Willey Road, Fernald, Ohio.

This closure plan was submitted pursuant to Rule 3745-66-12 of the Ohio Administrative Code (OAC) in order to demonstrate that the U.S. Department of Energy-Fernald Environmental Management Project's proposal for closure complies with the requirements of OAC Rules 3745-66-11 and 3745-66-12.

The public was given the opportunity to submit written comments regarding the closure plan in accordance with OAC Rule 3745-66-12. The public comment period extended from November 22, 1993 through December 28, 1993. No public comments were received by Ohio EPA.

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SD-EES-C26-CPI-1
2-1-94

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Pursuant to OAC Rule 3745-66-12(D)(4), I am providing you with a statement of deficiencies in the plan, outlined in Attachment A. Please take notice that OAC Rule 3745-66-12 requires that a modified closure plan addressing the deficiencies enumerated in Attachment A be submitted to the Director of the Ohio EPA for approval within thirty (30) days of the receipt of this letter.

The modified closure plan shall be in accordance with the following editorial protocol or convention:

1. Old language is over-struck, but not obliterated.

2. New language is capitalized.

3. Page headers should indicate date of submission.

4. If significant changes are necessary, pages should be re-numbered, table of contents revised, and complete sections provided as required.

The modified closure plan should be submitted to: Ohio Environmental Protection Agency, Division of Hazardous Waste Management, Attention: Tom Crepeau, Data Management Section, P.O. Box 1049, Columbus, Ohio 43266-0149. A copy should also be sent to: Robin Fisher, Ohio EPA, Southwest District Office, 40 South Main Street, 5th Floor, Dayton, Ohio 45402.

Upon review of the resubmitted plan, I will prepare and issue a final action approving or modifying such plan. If you wish to arrange a meeting to discuss your responses to this Notice of Deficiency, please contact Robin Fisher at (513) 285-6357.

Sincerely,

Donald R. Schregardus
Director

DRS/rgf

cc: Tom Crepeau, OEPA, DHWM Central File
Randy Meyer, OEPA, DHWM
Harriet Croke, Ohio Permit Section, USEPA, Region V
Robin Fisher, OEPA, Southwest District Office

ATTACHMENT A

DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
HAZARDOUS WASTE MANAGEMENT UNIT #26
DETREX STILL

OH6 890 008 976

Specific Comments:

1. Section 2.3, Pages 2-11 & 2-12 - The closure plan indicates that various components of the still (ie. pumps, valves, piping) will be compacted during closure of HWMU #26; however, the plan lacks sufficient information on this process. Please revise the plan to include the location where the compaction will take place, the equipment that will be utilized, and a detailed description of the process. The decontamination of the equipment must also be addressed within the closure plan. This information must be provided in accordance with OAC 3745-66-12(B)(3).

2. Section 4.4, Page 4-3 - The certification statement contained within the closure plan is incorrect. Revise the certification statement to include the exact wording found in OAC 3745-50-42(D). This information must be provided in accordance with OAC 3745-66-15.

3. Section 5.0, Page 5-1 - Within section 5.0 of the closure plan DOE-FEMP contends that the condenser is not a tank; however, plate 3, on page P-2, indicates that the condenser is a tank. Please correct this discrepancy within the closure plan. This information must be provided in accordance with OAC 3745-66-12.

4. Appendix 3, Page 1-4, Table 1-1 - The association of superscript #2 with Waste Number F003 is confusing. Please indicate in the revised closure plan whether this association was intentional or accidental. Given the information provided, superscript #4 may have been the intended notation. This information must be provided in accordance with OAC 3745-66-12.

END OF CLOSURE COMMENTS

007211

H-2197

OhioEPA
State of Ohio Environmental Protection Agency

P.O. Box 1049, 1800 WaterMark Dr.
Columbus, Ohio 43266-0149
(614) 644-3020
FAX (614) 644-2329

George V. Voinovic
Govern

Donald R. Schregardus
Direct

February 1, 1994

NOTICE OF DEFICIENCY

CERTIFIED MAIL

RE: CLOSURE PLAN
U.S DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL
MANAGEMENT PROJECT
(DOE-FEMP)
OH6 890 008 976
05-31-0681

Mr. J. Phil Hamric, Manager
Fernald Office
U.S. DOE-FEMP
P.O. Box 398705
Cincinnati, Ohio 45239-8705

Dear Mr. Hamric:

On November 10, 1993, Ohio EPA received from the U.S. Department of Energy-Fernald Environmental Management Project a closure plan for Hazardous Waste Management Unit #26 (Detrex Still), an unpermitted storage unit located at 7400 Willey Road, Fernald, Ohio.

This closure plan was submitted pursuant to Rule 3745-66-12 of the Ohio Administrative Code (OAC) in order to demonstrate that the U.S. Department of Energy-Fernald Environmental Management Project's proposal for closure complies with the requirements of OAC Rules 3745-66-11 and 3745-66-12.

The public was given the opportunity to submit written comments regarding the closure plan in accordance with OAC Rule 3745-66-12. The public comment period extended from November 22, 1993 through December 28, 1993. No public comments were received by Ohio EPA.



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Pursuant to OAC Rule 3745-66-12(D)(4), I am providing you with a statement of deficiencie in the plan, outlined in Attachment A. Please take notice that OAC Rule 3745-66-12 requires that a modified closure plan addressing the deficiencies enumerated in Attachment A be submitted to the Director of the Ohio EPA for approval within thirty (30) days of the receipt of this letter.

The modified closure plan shall be in accordance with the following editorial protocol or convention:

1. Old language is over-struck, but not obliterated.

2. New language is capitalized.

3. Page headers should indicate date of submission.

4. If significant changes are necessary, pages should be re-numbered, table of contents revised, and complete sections provided as required.

The modified closure plan should be submitted to: Ohio Environmental Protection Agency, Division of Hazardous Waste Management, Attention: Tom Crepeau, Data Management Section, P.O. Box 1049, Columbus, Ohio 43266-0149. A copy should also be sent to: Robin Fisher, Ohio EPA, Southwest District Office, 40 South Main Street, 5th Floor, Dayton, Ohio 45402.

Upon review of the resubmitted plan, I will prepare and issue a final action approving or modifying such plan. If you wish to arrange a meeting to discuss your responses to this Notice of Deficiency, please contact Robin Fisher at (513) 285-6357.

Sincerely,

Donald R. Schregardus
Director

DRS/rgf

cc: Tom Crepeau, OEPA, DHWM Central File
Randy Meyer, OEPA, DHWM
Harriet Croke, Ohio Permit Section, USEPA, Region V
Robin Fisher, OEPA, Southwest District Office

ATTACHMENT A

DEPARTMENT OF ENERGY
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
HAZARDOUS WASTE MANAGEMENT UNIT #26
DETREX STILL

OH6 890 008 976

Specific Comments:

1. Section 2.3, Pages 2-11 & 2-12 - The closure plan indicates that various components of the still (ie. pumps, valves, piping) will be compacted during closure of HWMU #26; however, the plan lacks sufficient information on this process. Please revise the plan to include the location where the compaction will take place, the equipment that will be utilized, and a detailed description of the process. The decontamination of the equipment must also be addressed within the closure plan. This information must be provided in accordance with OAC 3745-66-12(B)(3).

2. Section 4.4, Page 4-3 - The certification statement contained within the closure plan is incorrect. Revise the certification statement to include the exact wording found in OAC 3745-50-42(D). This information must be provided in accordance with OAC 3745-66-15.

3. Section 5.0, Page 5-1 - Within section 5.0 of the closure plan DOE-FEMP contends that the condenser is not a tank; however, plate 3, on page P-2, indicates that the condenser is a tank. Please correct this discrepancy within the closure plan. This information must be provided in accordance with OAC 3745-66-12.

4. Appendix 3, Page 1-4, Table 1-1 - The association of superscript #2 with Waste Number F003 is confusing. Please indicate in the revised closure plan whether this association was intentional or accidental. Given the information provided, superscript #4 may have been the intended notation. This information must be provided in accordance with OAC 3745-66-12.

END OF CLOSURE COMMENTS

# COMMENT DISPOSITION RECORD

Document: HWMU No. 26 - Detrex Still CPID, Rev. 1 - Response to Notice of Deficiencies

Reviewer: OEPA

| No. | Comment | Proposed Disposition |
|---|---|---|
| 1 | Section 2.3. Pages 2-11 & 2-12 - The closure plan indicates that various components of the still (ie. pumps, valves, piping) will be compacted during closure of HWMU #26; however, the plan lacks sufficient information on this process. Please revise the plan to include the location where the compaction will take place, the equipment that will be utilized, and a detailed description of the process. The decontamination of the equipment must also be addressed within the closure plan. | The use of the term "compact" was incorrect. The FEMP does not utilize a "compaction process" for size reduction of piping or tanks, but, rather, cuts into manageable sections for disposition. The text was changed on pages 2-9 (Table 2-2), 2-11 (paragraph 3), and 2-12 (paragraph 4) by striking out the old language and capitalizing the new language. In addition, the location of the activity, the equipment used, and disposal/decontamination of the equipment is included. The process description is self-explanatory. Page 2-13 is included because the paragraph overlapped onto that page. |
| 2 | Section 4.4. Page 4-3 - The certification statement contained within the closure plan is incorrect. Revise the certification statement to include the exact wording found in OAC 3745-50-42(D). | The certification statement was changed to include the exact wording found in OAC 3745-50-42(D). The text was changed on pages 4-3 and 4-4 by striking out the old language and capitalizing the new language. |
| 3 | Section 5.0. Page 5-1 - Within section 5.0 of the closure plan DOE-FEMP contends that the condenser is not a tank; however, Plate 3, on Page P-2, indicates that the condenser is a tank. Please correct this discrepancy within the closure plan. | Plate 3 on Page P-2, which is a photograph of the condenser unit, was mislabeled "Condensate Tank". The text was changed to "Condenser Unit" by striking out the old language and capitalizing the new language. |
| 4 | Appendix 3, Page 1-4, Table 1-1 - The association of superscript #2 with Waste Number F003 is confusing. Please indicate in the revised closure plan whether this association was intentional or accidental. Given the information provided, superscript #4 may have been the intended notation. | In Table 1-1, Waste Number F003 (Acetone) was footnoted incorrectly "2". The footnote was changed to "4" by striking out the old footnote and adding the new footnote. |
| * | If significant changes are necessary, pages should be re-numbered, table of contents revised, and complete sections provided as required. | Sections 4.5 "Post-Closure Plan" and 4.6 "Notice in Deed" were bumped from page 4-3 to 4-4. Page iv. in the Table of Contents is revised to include this change. |

cc: Without Enclosure
K. McDermontt, DOJ
J. Van Kley, Ohio AGO
R. Meyer, OEPA-Columbus
D. Ofte, FERMCO/1
R. Fellman, FERMCO/52-1
J. Williams, FERMCO/51-2
J. E. King, FERMCO/52-3
D. J. Brettschneider, FERMCO/52-5
K. L. Alkema, FERMCO/65-2
P. F. Clay, FERMCO/52-2
J. T. Curtis, FERMCO/MS8
J. W. Thiesing, FERMCO/MS2
D. L. Howe, RCRA Operating Record
N. L. Redmon, RCRA Closure Files, FERMCO/76
Administrative Record

# CLOSURE PLAN INFORMATION AND DATA
# for the
# Detrex Still

Fernald Environmental Management Project

March 1994
Revision 1

U.S. DEPARTMENT OF ENERGY

## CONTENTS (continued)

4.4 STATEMENT OF CERTIFICATION . . . . . 4-3
4.5 POST-CLOSURE PLAN . . . . . 4-4
4.6 NOTICE IN DEED . . . . . 4-4

5.0 SAMPLING PLAN AND ANALYTICAL PROCEDURES . . . . . 5-1
5.1 NATURE, RATE, AND EXTENT OF CONTAMINATION . . . . . 5-1
5.2 EQUIPMENT, CALIBRATION, AND EXPERIENCE OF OPERATORS . . . . . 5-2
5.3 PROCEDURES FOR GROUNDWATER MONITORING ANALYSIS . 5-3
5.4 NUMBER, LOCATION, AND FREQUENCY OF SAMPLES . . . . . 5-3

6.0 AIR AND WASTEWATER MANAGEMENT PLANS . . . . . 6-1
6.1 CONTROL OF AIRBORNE PARTICULATES . . . . . 6-1
6.2 CONTROL OF RUNOFF TO SURFACE WATER . . . . . 6-1
6.3 CONTROL OF RINSEATE RUNOFF . . . . . 6-1
6.4 CONTROL OF HAZARDOUS CONSTITUENTS . . . . . 6-1
6.5 WASTEWATER TREATMENT . . . . . 6-1

7.0 PERSONNEL SAFETY AND FIRE PREVENTION . . . . . 7-1
7.1 GUIDELINES FOR PREPARATION OF HEALTH AND SAFETY PLANS . . . . . 7-1

8.0 REFERENCES . . . . . 8-1

APPENDIX 1 DETREX STILL PHOTOGRAPHS
APPENDIX 2 WASTE CHARACTERIZATION DATA SUMMARY
APPENDIX 3 SAMPLING AND ANALYSIS PLAN
APPENDIX 4 GUIDELINES FOR PREPARATION OF HEALTH AND SAFETY PLANS

**Table 1-1.** Detrex Still Analytes for Waste Characterization. 

| Waste Number[1] | Analyte | TCLP Regulatory Levels (mg/l)[2] |
|---|---|---|
| F003[3,4] | Acetone | -- |
| D004 | Arsenic | 5.0 |
| D005 | Barium | 100.0 |
| D018 | Benzene | 0.5 |
| D006 | Cadmium | 1.0 |
| D019 | Carbon tetrachloride | 0.5 |
| D021 | Chlorobenzene | 100.0 |
| D022 | Chloroform[3] | 6.0 |
| D007 | Chromium | 5.0 |
| D023 | o-Cresol | 200.0 |
| D024 | m-Cresol | 200.0 |
| D025 | p-Cresol | 200.0 |
| D026 | Cresol (total) | 200.0 |
| D016 | 2,4-D | 10.0 |
| D027 | 1,4-Dichlorobenzene | 7.5 |
| D028 | 1,2-Dichloroethane | 0.5 |
| D029 | 1,1-Dichloroethylene | 0.7 |
| D030 | 2,4-Dinitrotoluene | 0.13 |
| D032 | Hexachlorobenzene | 0.13 |
| D033 | Hexachlorobutadiene | 0.5 |
| D034 | Hexachloroethane | 3.0 |
| D008 | Lead | 5.0 |
| D009 | Mercury | 0.2 |
| D035 | Methyl ethyl ketone | 200.0 |
| D036 | Nitrobenzene | 2.0 |
| D037 | Pentachlorophenol | 100.0 |
| D038 | Pyridine | 5.0 |
| D010 | Selenium | 1.0 |
| D011 | Silver | 5.0 |
| D039/F001[4] | Tetrachloroethylene | 0.7 |
| D040/F002[4] | Trichloroethylene | 0.5 |
| D041 | 2,4,5-Trichlorophenol | 400.0 |
| D042 | 2,4,6-Trichlorophenol | 2.0 |
| D043 | Vinyl chloride | 0.2 |
| F002/F001[4] | 1,1,1-Trichloroethane | -- |

**Table 1-1.** Detrex Still Analytes for Waste Characterization. 

| Waste Number[1/] | Analyte | TCLP Regulatory Levels (mg/l)[2/] |
|---|---|---|
| -- | Thorium (total) | -- |
| -- | Uranium (total) | -- |
| -- | Polychlorinated biphenyls | -- |

1/ Waste number that would be applied if the analyte concentration exceeds the TCLP regulatory level.
2/ Maximum concentrations of contaminants for the TCLP (40 CFR § 261.24).
3/ Chloroform is regulated as the sum of all trihalomethanes.
4/ Waste number that would be applied if the analyte is detected at any concentration.

**Table 2-2. Sequence of Actions Required for Closure of the Detrex Still.**

| Equipment Item | Actions |
|---|---|
| Still Tank | • Disassemble and remove<br>• Manage contaminated materials<br>- Remove and package Still Tank |
| Solvent Condenser | • Decontaminate<br>• Dismantle and remove<br>• Manage contaminated materials<br>- Remove, ~~compact~~ CUT INTO MANAGEABLE SECTIONS, and package attached valves, and instruments<br>• Manage decontamination wastes<br>• Size reduce and manage clean materials |
| Equipment Structural Supports | • Dismantle<br>• Decontaminate<br>• Manage clean materials<br>• Manage decontamination wastes |
| Piping | • Remove external insulation from steam piping<br>• Dismantle and remove<br>• Manage clean materials<br>• Manage contaminated materials<br>- Remove, ~~compact~~ CUT INTO MANAGEABLE SECTIONS, and package external insulation, connecting piping, valves, and instrumentation |
| Pump, valves (and any piping not suitable for decontamination - e.g., rusty) | • Manage contaminated materials<br>- Remove, ~~compact~~ CUT INTO MANAGEABLE SECTIONS, and package pump, valves, and any piping |
| Concrete Floor | • Decontaminate (scabble)<br>• Manage decontamination wastes<br>- Sample and package concrete rubble |

The equipment structural supports will be decontaminated using high pressure steam and water sprays until a visual inspection confirms a "clean debris surface" is obtained, in accordance with the OEPA Interim Final Closure Review Guidance (September 1, 1993) and 40 CFR § 268.45-Table 1, Footnote No. 3. Debris surfaces are considered "clean" when the surface, viewed without magnification, is free of all visible hazardous waste except that residual staining from waste consisting of light shadows, slight streaks, or minor discolorations, and waste in cracks, crevices, and pits may be present provided that such staining and waste in cracks, crevices and pits is limited to no more than 5% of each square inch of surface area.

The condenser will be decontaminated using the same high pressure steam and water spray described above for the equipment structural supports. Following decontamination and determination of a "clean debris surface" (as described above), the condenser will be dismantled and removed. The condenser will then be demolished, and managed appropriately, in accordance with Section 2.2.2.1. The equipment items will be handled and managed as clean or contaminated materials.

During disassembly, ~~valves or instruments on the condenser~~ CONNECTING PIPING AND SOLVENT INLET/OUTLET PIPING, will be removed, ~~compacted~~ CUT INTO SECTIONS, and managed as mixed waste. THE PIPING AND WILL BE CUT INTO SECTIONS, AS NECESSARY, IN THE FIELD OR IN THE DECONTAMINATION AND DECOMMISSIONING (D&D) FACILITY TO CONFORM TO THE SIZE OF THE STORAGE CONTAINER. PRIOR TO DISMANTLING ANY EQUIPMENT, INDUSTRIAL HYGIENE WILL MONITOR THE AREA TO ENSURE WORKER SAFETY. THE PIPING WILL BE CUT INTO SECTIONS WITH FEMP APPROVED EQUIPMENT (E.G., BAND SAW, RECIPROCATING SAW, ACETYLENE TORCH, OR PLASMA-ARC TORCH). CONTAMINATED SAW BLADES WILL EITHER BE DISCARDED OR DECONTAMINATED BY FEMP MAINTENANCE.

Spill prevention and control measures will be employed during all decontamination operations, in accordance with the FEMP SOPs. Work areas will be prepared by placing impermeable liners and/or diking to contain spills. Catch pans or basins will be placed beneath the equipment at points where there is potential for liquids to drain, once disconnected. Personnel will disconnect the equipment from existing piping, tubing, structural supports, instrumentation, ancillary equipment, and electrical connections. If appropriate, the resulting openings will be sealed. Liquids collected in catch pans and

all other demolition waste created by the dismantling activities will be managed according to the procedures described in Section 2.2 for mixed wastes pending characterization and final disposition. Personnel will apply standard industry procedures selected according to the type of equipment as well as the historical use based on process knowledge.

Personnel may require access to internal surfaces of equipment to remove waste inventories and residues and to facilitate decontamination. Workers may have to cut through the walls of the Still Tank. Asbestos abatement controls specified by Removal Action No. 26, Asbestos Abatement, will be applied. Workers will seal these access openings to prevent spread of contamination while the equipment awaits final disposition.

The Detrex Still Tank will be disassembled and removed to prevent the spread of contamination. Distillation residues (approximately 2.8 $ft^3$) will be sampled and removed after disassembly. However, the asbestos insulation on the outside of the Still Tank will not be removed. The equipment items will be handled and managed as contaminated material. The Still Tank then will be packaged and managed as described in Section 2.2.2.2.

The pump, valves, and piping are not amenable to decontamination, and will be considered contaminated materials. These items will be ~~compacted~~ CUT INTO SECTIONS IN THE FIELD OR AT THE D&D FACILITY, appropriately containerized, and managed as described in Section 2.2.

Consistent with the Physical Extraction technologies specified in 40 CFR § 268.45-Table 1, the concrete floor within the HWMU boundaries (and any contiguous staining on the concrete floor which extends outward beyond the HWMU boundaries) will be decontaminated using a concrete impact scabbling device to remove at least 0.6 cm of the surface layer. Treatment will continue until a "clean debris surface" has been obtained, by visual inspection (see OEPA September 1993 Interim Final Closure Review Guidance page 26 and Footnote No. 3 in 40 CFR § 268.45-Table 1). The "clean debris surface" criteria are the same as those already discussed. The scabbled concrete debris will be sampled, appropriately containerized, and managed according to Section 2.2 procedures. The scabbling equipment is equipped with a high efficiency particulate

(HEPA) vacuum system to collect and control airborne particulates during concrete scabbling operations.

All equipment found to be free from hazardous contamination will be managed as non-RCRA, processed through a radiological decontamination area, if necessary, and then added to the scrap inventory for recycle. Disposal will be conducted in accordance with the procedures in Section 2.2. Equipment and materials that cannot be fully decontaminated will then be containerized and managed as mixed waste according to procedures described in Section 2.2.

Decontamination will generate materials including construction debris (such as temporary diking and splash shielding), wash water, flush water, nonhazardous solvents, and wipes used to wipe down and remove visible residues and sludges from equipment and facilities. All decontamination materials will be collected and managed according to procedures described in Section 2.2. At this point in the Detrex Still closure, all hazardous materials and contaminated equipment will have been removed from the Detrex Still HWMU, and the closure field activities will be complete.

## 2.4 DESCRIPTION OF SECURITY SYSTEMS

The boundary of the Detrex Still has been marked and identification signs have been posted. Access to the HWMU is restricted by chains.

As with all DOE facilities, plant security at the FEMP is strict. The entire FEMP processing area, which includes Building 1A and the Detrex Still area, is surrounded by chain link fencing and monitored 24 hours a day by onsite security personnel. All employees and visitors enter through one of several guarded entrances into the facility.

## 4.4 STATEMENT OF CERTIFICATION

~~The FEMP will submit a Certification of RCRA Closure within 60 days after the Detrex Still closure is complete. Completion of closure for the Detrex Still will be certified after the completion of the actions described in this CPID. The Certification will comply with the provisions of OAC 3745-55-15 and 40 CFR § 264.115. The Certification will state the following:~~

~~"Based on information made available to me, I....., (Title)....., do hereby certify that to the best of my knowledge, the Detrex Still System Components have been closed in accordance with the closure plan information and data for the Detrex Still as approved by the Ohio EPA on....(date)."~~

THE DOE AND AN INDEPENDENT, QUALIFIED, REGISTERED, PROFESSIONAL ENGINEER, WILL SUBMIT CERTIFICATION OF CLOSURE WITHIN 60 DAYS AFTER COMPLETING THE ACTIONS SPECIFIED IN THIS APPROVED CLOSURE PLAN INFORMATION AND DATA FOR THE DETREX STILL. THE CERTIFICATION WILL MEET THE REQUIREMENTS OF OAC 3745-50-42(D) AND OAC 3745-66-15 AND 40 CFR 270.11(D) AND 40 CFR 265.115, RESPECTIVELY. THE CERTIFICATION STATEMENTS WILL BE WORDED AS FOLLOWS:

"I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS."

_____
U. S. DEPARTMENT OF ENERGY

"I HEREBY CERTIFY THAT THE HAZARDOUS WASTE MANAGEMENT UNIT HAS BEEN CLOSED IN ACCORDANCE WITH THE SPECIFICATIONS IN THE APPROVED CLOSURE PLAN."

_____
OHIO REGISTERED PROFESSIONAL ENGINEER

## 4.5 POST-CLOSURE PLAN

Because this plan contemplates clean closure of the Detrex Still HWMU as defined in this CPID, no specific post-closure care for this unit is anticipated.

## 4.6 NOTICE IN DEED

A notation in the property deed is required under OAC 3745-55-19(b)(1) (40 C.F.R. § 264.119) for areas that require post-closure care. Because the Detrex Still HWMU will not require unit-specific, post-closure care, these notice requirements will not be necessary.

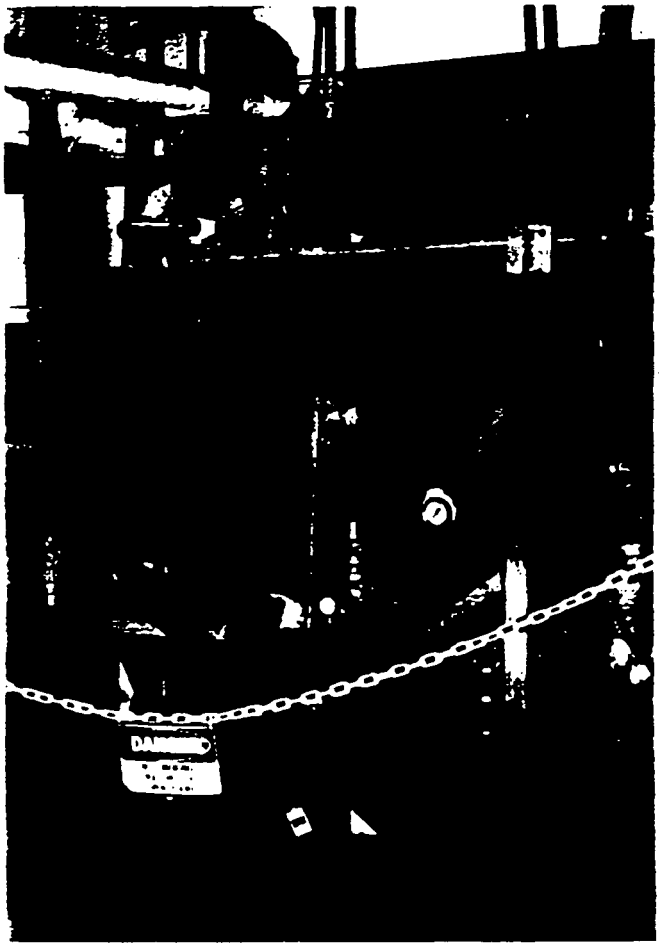



Plate 2. Still Tank.

Plate [illegible] ~~Condensate Tank~~ CONDENSER UNIT

# ATTACHMENT B

# ASBESTOS ABATEMENT DOCUMENTATION

FEMP WORK REQU[redacted] [redacted] 13002

**ORIGINA[redacted]'S SECTION**

| EQUIPMENT NUMBER | WORK ORDER NO. |
|---|---|
| 0 1 - X 2 3 7 - 5 7 L | CM 2826 |

CM (Corrective) / AL (Alteration)* — *Questionnaire must be attached — TYPE OF JOB (CIRCLE ONE)

EQUIPMENT NAME: DETREX STILL

PRIORITY: ☒ 1 ☐ 2 ☒ 3 ☐ 4 (NER) — QA LEVEL: ☐ 1 ☐ 2 ☐ 3 ☒ 4

REQUESTED COMPLETION DATE: (MM/DD/YY) 08.19.94

PERSONAL SAFETY (PSS) ☐ YES ☐ NO — SAFETY SYSTEM (SSS) ☐ YES ☐ NO — PERSONAL & SAFETY SYS. (SPS) ☐ YES ☐ NO

JOB DESCRIPTION:

Remove Asbestos From STEAM LINES AHACHED TO THE DETREX STILL PLANT 1 FIRST FLOOR

ASSIGN TO: Ash.

BUILDING: PLANT 1 — FLOOR: 1 — ROOM/AREA: G 5 — CAPITAL EXPENSE ☐ YES ☒ NO

| NAME: | INITIALS: | DATE: | PHONE: | SIGNATURE: | INITIALS: | DATE: | |
|---|---|---|---|---|---|---|---|
| AL Combs | ADC | 8-10-94 | 6095 | A. Lampola | SLL | 8/11/94 | 3BCS4310 |

ORIGINATOR (REQ) — FACILITY OWNER (APV) MS: — COST CENTER: 3BCS4 — OBJ. CL.

**PLANNING SECTION**

| | JOB ELEMENTS 26' | CRAFT CODE | NO. | MAN HOURS EST | ACTUAL |
|---|---|---|---|---|---|
| 1 | SECURE PERMITS & WORK SITE | 55 | 2 | 4.0 | |
| 2 | REMOVE ACM P.I BY NEG AIR GLOVE BAG | 55 | 2 | 20.0 | |
| 3 | CLEAN-CLEAR AERA & DISPOSE OF WASTE | 55 | 2 | 6.0 | |
| 4 | | | | | |
| 5 | 26ET REMOVAL | | | | |
| 6 | | | | | |

OVERHEAD: — LABOR: 735.00 — TAX: — TOTAL: 735.00 — PLANNER'S INITIALS: M P K — SHOP: 25 — TYPE EST: 03 — TOTALS: 30.0

PERMITS REQUIRED: ☒ YES ☐ NO IF YES, LIST PERMITS: Ash. W.P.

**APPROVAL SECTION**

| | | | |
|---|---|---|---|
| FACILITY OWNER (PRE-APPROVAL) SIGNATURE: Tom Lampola | DATE: 8/16/94 | QA/QC SIGNATURE: Michael a Molne | DATE: 8/11/94 |
| SAFETY ENGINEERING AND FIRE SERVICE SIGNATURE: Ruth Lanning | DATE: 8-11-94 | ENGINEERING SIGNATURE: | DATE: |
| CRU SIGNATURE: | DATE: | RESPONSIBLE FIRST LINE SUPERVISOR SIGNATURE: | DATE: 8/15/94 |
| RADIOLOGICAL SAFETY SIGNATURE: | DATE: | FACILITY OWNER: (FINAL RELEASE) - SEND WORK SIGNATURE: Tom Lampola | DATE: 8/16/94 |
| INDUSTRIAL HYGIENE SIGNATURE: Tom Lampola | DATE: 8-16-94 | DAVIS BACON DETERMINATION: APPLICABLE: ☐ YES ☒ NO NUMBER: | |
| ENVIRONMENTAL COMPLIANCE SIGNATURE: | DATE: | SPECIAL APPROVAL APPLICABLE ☐ YES ☒ NO SIGNATURE: | DATE: |

**COMPLETION SECTION**

| | | | | |
|---|---|---|---|---|
| RESPONSIBLE FIRST LINE SUPERVISOR SIGNATURE: | DATE: 8/19/94 | FACILITY OWNER SIGNATURE: | DATE: 8-22-94 | DATE CLOSED: MONTH / DAY / YEAR |

FS-F-2532 (REV. 04/27/94)

## *Work Permit Package Approval Sheet*

The following ES&H and support group representatives have performed a formal review of proposed work activities. Requirements specified in the attached work permit meet all applicable federal and state regulations in accordance with FEMP ES&H and support group procedures.

James Canady — date 8/16/94
Radiological Control Representative

Tom Ernetta — date 8/16/94
Industrial Hygiene Representative

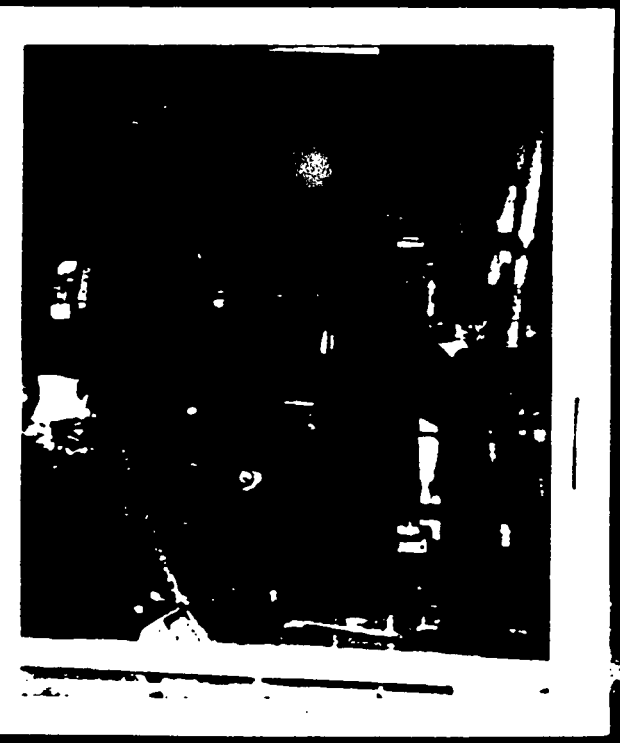
N/A — date __/__/__
OS & H Representative

Phil Williams — date 8/16/94
Cognizant Work Supervisor

[signature] — date 8/16/94
Other Support Group Representative *(when applicable)*
PROJECT DESIGNER

Work Package Document Identification Number : CM 216

007211



069

SUMMARY AND/OR SPECIAL REPORT FORM

Location _____

Entered by: _____ Date _____

Reviewed by: _____ Date _____

# FERMCO ASBESTOS WORK PERMIT

*This permit is only valid when it is attached to the FERMCO Work Permit Form which has Section A through D completed.*

FERMCO WORK PERMIT NUMBER: 36874

## SECTION A - BACKGROUND AND REGULATORY INFORMATION *(To be supplied by supervisor-in-charge)*

1. Exact location: Pit 1 Crafter
2. Exact description of work to be conducted: Removal of ACM From 3" Insulation [illegible]
3. Amount of asbestos to be removed (in linear or/square feet): 2
4. Regulatory approval received to begin work: ☐ YES ☑ DNA ☐ Incidental
   * If yes, regulatory approval for this job starts _____ (Date) and stops _____ (D
5. Does job description meet requirements for small-scale, short-dura [illegible] ☑ YES ☐ NO

*Section B contains items which shall be complied with on this job as indicated.*

## SECTION B - PRE-JOB REQUIREMENTS

SPECIFIED BY: TGE (IH TECHNICIAN INITIALS) 8-16-94 (DATE) 13:00 (TIME)

### PREPARATION OF WORK SITE *(All Asbestos Jobs)*

| | REQ'D | DNA |
|---|---|---|
| 1. Work area barricaded and/or roped off | ✓ | |
| 2. Asbestos warning signs posted at work site | ✓ | |
| 3. Pre-cleaning of work area required | | ✓ |
| 4. All small items removed from designated work area | ✓ | |
| 5. Large equipment secured and covered with plastic | ✓ | |
| 6. Floor and ledges covered with plastic | ✓ | |
| 7. Area ventilation systems locked and tagged out | | ✓ |
| 8. Shower established adjacent to work area | ✓ | |
| 9. Waste water filtered (5 micron filter) | ✓ | |
| 10. Perimeter air sampling required during work | | ✓ |
| 11. Nearby building occupants shall be notified of asbestos work to prevent unauthorized access to work area | ✓ | |
| 12. Contact IH Technician to inspect work area preparation before asbestos removal begins | ✓ | |

### PREPARATION OF WORK SITE *(For Total Enclosure Jobs Only)*

| | REQ'D | DNA |
|---|---|---|
| 1. Floor and wall penetrations covered and sealed | | ✓ |
| 2. Negative air enclosure set-up around work area | | ✓ |
| 3. Negative air machine operating continuously | | ✓ |
| 4. Negative pressure achieved at 0.02 inches or greater | | ✓ |

### WORK PRACTICES

| | REQ'D |
|---|---|
| 1. Personal air samples required *(samples collected for entire shift when possible)* | ✓ |
| 2. No smoking, eating or drinking permitted in work area | ✓ |
| 3. HEPA-Filtered vacuum required for clean-up | ✓ |
| 4. HEPA vacuum required at point of cut/drilling | ✓ |
| 5. Glove bag removal of pipe insulation required | ✓ |
| 6. Transite panels shall be removed whole | |
| 7. Asbestos material shall not be allowed to drop | ✓ |
| 8. Transite panels shall be wet down/encapsulated before removal | |
| 9. Amended water shall be used to wet down material | ✓ |
| 10. Asbestos material thoroughly wet down before removal | ✓ |
| 11. Removed material promptly bagged *(not allowed to dry out)* | ✓ |
| 12. Surfaces shall be coated with a sealant to encapsulate any remaining fibers | ✓ |
| 13. Work area cleaned after completion of work each day | ✓ |
| 14. Tools and equipment shall be cleaned of all residual dust before removal from work area. | ✓ |
| 15. Personnel to decontaminate at each departure from work area | ✓ |
| 16. Bag contaminated clothing and waste promptly | ✓ |
| 17. Bagged waste material shall be placed in containers and labeled as asbestos waste *(exterior of containers shall be clean and asbestos-free)* | ✓ |
| 18. Shower before lunch and at end of shift | ✓ |

## SECTION C - FINAL INSPECTION REQUIREMENTS

| | REQ'D |
|---|---|
| 1. Visual inspection of work area for residual dust required after completion of job *(contact IH Technician)* | ✓ |
| 2. General area air samples required after completion of job *(contact IH Technician)* | |
| 3. Obtain IH Technician approval before removal of barriers & warning signs | ✓ |

## SECTION D - SIGNATURES *(Employees assigned to job)*

I have read and understand all requirements of this permit.

| EMPLOYEE(S) SIGNATURE(S) | BADGE NO. | DATE | EMPLOYEE(S) SIGNATURE(S) | BADGE NO. | DATE |
|---|---|---|---|---|---|
| 1. [redacted] | 206 | 8-16-94 | 4. | | |
| 2. [redacted] | 2203 | [illegible] | 5. | | |
| 3. | | | 6. | | |

### APPROVAL TO BEGIN WORK

IH TECHNICIAN SIGNATURE: [illegible] DATE: [illegible] TIME: [illegible]

### APPROVAL TO REMOVE BARRIERS AND WARNING SIGNS

IH TECHNICIAN SIGNATURE: [illegible] DATE: TIME:

| NO. | DISTRIBUTION OF COPIES |
|---|---|
| 1 | POST AT JOB |
| 1 | SUPERVISOR IN CHARGE |
| 1 | INDUSTRIAL HYGIENE INDUSTRIAL SAFETY |
| 1 | EMPLOYEE REPRESENTATIVE |

WORK AUTHORIZATION REVIEWED AND FOUND ACCEPTABLE FOR

SUPERVISOR OR COMPETENT PERSON'S SIGNATURE: [illegible] DATE: 8-16-94 TIME: [illegible]

[illegible] Fermco Work Permit [illegible] barriers and warning [illegible] area is needed, employees assigned [illegible] are required [illegible] permit [illegible] Section A [illegible]

[illegible] indicates that [illegible] has not been trained or an [illegible] OSHA and [illegible] Representative [illegible] NESHAP

For RP/PR Use Only

FEMP 9 - ____ Rev. ____
Date Ent: ____/____/____

02/93

COPY

# DEMOLITION/RENOVATION PROJECT
# ASBESTOS REMOVAL NOTIFICATION FORM
# FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Class of removal: [ ] Demolition [✓] Renovation

Type of removal: [✓] Planned [ ] Incidental [ ] Non-friable [ ] Emergency

Class of asbestos: [✓] Friable [ ] Class I Non-friable [ ] Class II Non-friable [ ] Potentially friable

Type of asbestos [✓] Pipe Insulation [ ] Duct Insulation [ ] Transite [ ] Floor Tile

[ ] Other: ____

Is Asbestos Material Radiologically Contaminated: [✓] Yes [ ] No

Estimated Quantity of Removal: Square feet: ____ Linear feet: 26'

Method used to detect asbestos: [ ] Sample tested [✓] Asbestos content assumed based on prior testing of similar material, the age, usage or location of the materials, or knowledge of the material constituents.

Method of quantity determination: [ ] Direct measure [✓] Visual estimate [ ] Other ____

Removal Schedule: Start Date: 8/15/94 Completion Date: 8/18/94

Revised Removal Schedule: Start Date: __/__/__ Completion Date: __/__/__

Project Schedule: Start Date: 8/15/94 Completion Date: 8/18/94

Revised Project Schedule: Start Date: __/__/__ Completion Date: __/__/__

FERMCO Project Contact: Name: MEL P. KARNES Extension: 9121 Mail Stop: 56

FERMCO Work Order Number: CM- 2826 Rust/Subcontractor WO #: ____

Actual Removal Contractor : [X] FERMCO [ ] Rust [ ] InsulCraft/Kramig [ ] Other

On-site removal supervisor: PHIL A. WILLIAMS Phone #: 6427

If other, submit copy of Ohio Department of Health "Asbestos Hazard Abatement Contractor" License

Building Information: Plant/Building #: PLT 1 Name: DETREX STILL

Size (total Sq. ft): ____ Age (years): ____ Use: Present ____ Prior ____

Description of Specific Project, Room #, location, or area of removal: REMOVE ACM P.I FROM ABANDONED LINES, TO REMOVE OLD STILL

Removal Procedures (check as appropriate):
[✓] adequate wetting, [✓] amended water, [✓] keep material wet until collected,
[✓] glove-bag with negative air, [ ] full enclosure with negative air, [✓] HEPA vacuum required,
[✓] carefully lower materials, [✓] complete cleaning and lockdown, [✓] exposed surface encapsulated
[✓] seal materials into leak-tight container, [ ] dry removal (contact RP),
[ ] other ____

Completed by: MEL P. KARNES (Printed or Typed) PROJECT DESIGNER — P/E
Name Title

Submit completed form to REGULATORY PROGRAMS: Permitting and Reporting, mail stop 865. If there are any questions, please contact RP at extension 6053.

Please complete all blocks, incomplete notification forms will be returned which could result in project delays.

DATE SUBMITTED AUG 11 1994

PRE-JOB BRIEFING FORMAT

| | |
|---|---|
| Job Description Asbestos Removal | W.O.# CM 2826 |
| Job Location Plt 1, 1ST. FLOOR. N-W | Date 8-11-94 |

*Work Package Check list Recommended as a Briefing Aid*

| | Yes | No | N/A | Remarks |
|---|---|---|---|---|
| Job Sequence | | | | |
| A. Maintenance Work Hold Points | | ✓ | | |
| B. Quality Inspection Points | | ✓ | | |
| C. Foreign Material Exclusion Measures | | ✓ | | |
| D. Post Maintenance Performance Testing | | ✓ | | |
| Coordination of Work with Other Open Work Requests | | | | |
| A. Other Open W/O's will be completed concurrently | | ✓ | | |
| B. PM services will be completed concurrently with this W/O | | ✓ | | |
| Maintenance Materials or Special tools required to Complete the task | | ✓ | | |
| Personnel assigned to task | | | | |
| A. Crafts Required | ✓ | ✓ | | 55 |
| B. Coordination Between Crafts | | | | |
| C. Designated Person(s) In Charge P. WILLIAMS | | | | |
| D. Special Training or Qualifications M KARNES | ✓ | | | Asbestos. |
| Review of Work Permit(s) | | | | |
| A. PPE Required | ✓ | | | |
| B. Type of Respirator Fit | ✓ | | | |
| C. Special Monitors Required | ✓ | | | |
| D. Work Area Barricades | ✓ | | | # TAGS |
| Hazardous Energy/Material Isolation (Lock and Tag) | | | ✓ | SYS. IN S.S.D |
| Service Interruption Coordination | | | | |
| Independent Approvals Required | | ✓ | | |
| JSA or Other Safety Documents Applicable | ✓ | | | JSA 67 |
| Other Maintenance Technical Work Documents Applicable | ✓ | | | OM-005 |
| Other Support Required | | ✓ | | |
| Configuration Control/Management Matters which must be Satisfied | | ✓ | | |
| Hazardous Waste Material Management | | | | |
| A. Spill Control Measures | ✓ | | | |
| B. Waste Accumulation Container Location(s) | ✓ | | | BLDG. 12-D |
| Miscellaneous Matters | | | | |
| * EQ. TO BE REMOVED BY SAFE SHUT DOWN. | | | | |

| | |
|---|---|
| Name of Briefer | Verification |

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**Fernald Environmental Restoration Management Company**

Task/Job/Procedure Briefing

**ATTENDANCE ROSTER**

| | | |
|---|---|---|
| TASK/JOB/PROCEDURE BRIEFED: CM 2826 | | |
| SUPERVISOR/BRIEFER NAME: [redacted] | BADGE NUMBER: 0232 | DATE: 8-11-94 |

| | WORKER NAME | | BADGE NUMBER OR SOCIAL SECURITY NUMBER | DEPARTMENT OR COMPANY |
|---|---|---|---|---|
| | PRINTED | SIGNATURE | | |
| 1 | [redacted] | [redacted] | 8303 | RSG/MAINT. |
| 2. | | | 3246 | Pipefitter |
| | | | 3203 | " " |
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# JOB SAFETY ANALYSIS

| | | | |
|---|---|---|---|
| JOB GLOVE BAG ASBESTOS REMOVAL | | DATE 02/15/94 | REV 0 |
| JOB TITLE ASBESTOS CREW | DEPARTMENT RSO | SECTION/GROUP MAINTENANCE | |
| SUPERVISOR | ANALYZED BY MEL KARNES | REVIEWED BY W/ Hudson | APPROVED BY Keith Lanning |

REQUIRED AND/OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT: FOLLOW ASBESTOS WORK PERMIT AND RADIOLOGICAL WORK PERMIT (IF APPLICABLE) FOR PPE REQUIREMENTS

| SEQUENCE OF BASIC JOB STEPS | POTENTIAL ACCIDENT OR HAZARDS | RECOMMENDED SAFE JOB PROCEDURE |
|---|---|---|
| 1. SECURE PERMITS. IF NECESSARY, REVIEW "ASBESTOS OPERATIONS AND MAINTENANCE WORK PROCEDURE" (OM-0005) | 1. ASBESTOS EXPOSURE, RADIATION EXPOSURE | 1. FOLLOW PPE REQUIREMENTS OF PERMITS |
| 2. ISOLATE ENERGY SOURCES | 2. INJURY FROM UNEXPECTED ENERGIZATION, STEAM BURN, CHEMICAL BURN, ELECTRIC SHOCK. | 2. FOLLOW LOCK & TAG (SSOP-0719) AND ALLOW SYSTEM TO COOL DOWN. |
| 3. SET UP WORK SITE (OM-0005, 10.1.1 THRU 10.1.3) | 3. ASBESTOS EXPOSURE | 3. USE "ASBESTOS" BARRIER TAPE AND TARPS OR OTHER METHODS SPECIFIED IN OM-0005. |
| 4. ACCESS WORK SITE | 4. FALL FROM (AS APPLICABLE):<br>A. LADDER,<br>B. MANLIFT,<br>C. SCAFFOLD, OR<br>D. PICK BOARDS. | 4A. TIE OFF STRAIGHT LADDERS AND USE FULL-BODY HARNESS IF STANDING OVER 6' ABOVE GROUND.<br>4B. HAVE SITE TRAINING BEFORE USING MAN-LIFT AND USE FULL BODY HARNESS IN BUCKET.<br>4C. HAVE SCAFFOLD INSPECTED BY OS&H<br>4D. USE FULL-BODY HARNESS WHEN USING PICK BOARDS |
| 5. PERFORM WORK PER OM-0005: (A) ATTACH GLOVE BAG, (B) REMOVE METAL, WIRES, TAR PAPER, ASBESTOS CONTAINING MATERIAL, (C) CLEAN SURFACES, (D) REMOVE GLOVE BAG, (E) LOCK DOWN WITH ENCAPSULANT, (F) CLEAN WORK SITE, (G) CLEAR WORK SITE. | 5A. ASBESTOS EXPOSURE<br>5B. SOLVENT EXPOSURE FROM ENCAPSULANT | 5A. FOLLOW PPE IN PERMITS AND PROCEDURES IN OM-0005.<br>5B. REVIEW MSDS SHEET BEFORE USE. |

FEMP

# JOB SAFETY ANALYSIS

| JOB | | | DATE |
|---|---|---|---|
| Remove Asbestos from Steam Line attached to the Detrex Still Plant 1 | | | 8-11-94 |
| JOB TITLE: Remove Asbestos | DEPARTMENT | SECTION/GROUP | |
| SUPERVISOR: Phil Williams | ANALYSIS BY | REVIEWED BY | APPROVED BY |

REQUIRED AND/OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

| SEQUENCE OF BASIC JOB STEPS | POTENTIAL ACCIDENTS OR HAZARDS | RECOMMENDED SAFE JOB PROCEDURE |
|---|---|---|
| **NOT REQUIRED. ALL PERSONNEL TO BE FULLY TRAINED FOR ASBESTOS ABATEMENT**<br><br>OS&H 8/11/94 | | |

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# RADIOLOGICAL WORK PERMIT

*This permit is only valid when attached to a FERMCO WORK PERMIT.*

(1) WORK PERMIT NUMBER: 36976

PAGE: 107

## PART III - WORKER VERIFICATION

*Signature verifies worker has read, understood, and will comply with the requirements of this RWP*

| NAME | | | BADGE NUMBER | BRIEFED PER PART II? | RESPIRATOR FIT TEST CURRENT? | RAD WO TRA |
|---|---|---|---|---|---|---|
| PRINTED | SIGNATURE | DATE | | | | |
| [illegible] | [illegible] | [illegible] | [illegible] | ☑ YES ☐ NO | ☑ YES ☐ NO | ☐ I |
| [illegible] | [redacted] | [illegible] | [illegible] | ☐ YES ☐ NO | ☑ YES ☐ NO | ☐ I |
| [redacted] | [redacted] | 8-16-94 | 8303 | ☑ YES ☐ NO | ☑ YES ☐ NO | ☐ I |
| | | | | ☐ YES ☐ NO | ☐ YES ☐ NO | ☐ I |
| | | | | ☐ YES ☐ NO | ☐ YES ☐ NO | ☐ I |
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| | | | | ☐ YES ☐ NO | ☐ YES ☐ NO | ☐ I |

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| NO. | DISTRIBUTION OF COPIES |
|---|---|
| 1 | JOB SITE |
| 2 | RCT SUPERVISOR |
| 3 | DOSIMETRY MANAGER |

☐ RWP CONTINUED ON NEXT

FEMP
RADIOLOGICAL WORK PERMIT
*This permit is only valid when attached to a FERMCO WORK PERMIT.*

(1) WORK PERMIT NUMBER: 36874

PAGE: 1 OF 2

PART I - RADIOLOGICAL CONTROL REQUIREMENTS

| | | | |
|---|---|---|---|
| (2) TODAY'S DATE: 8-16-94 | (3) TIME: 0820 | (4) ESTIMATED COMPLETION DATE: 8-18-94 | |
| (5) BUILDING/PLANT: PLANT 1 | (6) LEVEL: 580'-640' | (7) COORDINATES: | (8) PLANT JOB NUMBER: |
| (9) SUPERV: [redacted] | | (10) PHONE EXT./RADIO: 6427 | (11) ESTIMATED JOB MAN-HOURS: 60 |

| (12) STAY TIME: | (13) STAY TIME BASIS (Determined by Radiological Engineering): | | |
|---|---|---|---|
| N/A HOURS/WEEK | SKIN | LIMITING DOSE RATE | mrem/hr |
| | WHOLE BODY | IF AIRBORNE | %DAC |
| | EXTREMITY | SURVEY I.D. NUMBER | |
| | AIRBORNE | HIGHEST γ LEVEL ON PIPING INSUL. 30K DPM/100 | |

NOTICE — *Post most recent survey data at the work site.* — NOTIC

| (14) COVERAGE REQUIREMENTS | (15) AIR MONITORING REQUIREMENTS | (16) CONTAMINATION CONTROL |
|---|---|---|
| [X] INTERMITTENT COVERAGE | [ ] CONTINUOUS AIR MONITOR (Type: ) | [ ] HEPA VENTILATION: # |
| [ ] CONTINUOUS COVERAGE | [X] BREATHING ZONE AIR SAMPLER (PAS) | [ ] HEPA VACUUM: # |
| [ ] NOTIFY RC EACH SHIFT WHEN RWP IS USED | [ ] GENERAL AREA AIR SAMPLING | [ ] AREA ISOLATION |
| [ ] OTHER: | [ ] OTHER: | [ ] CONTAINMENT DEVICE |
| [ ] OTHER: | [ ] OTHER: | [ ] OTHER: |

(17) COMPLETE AN ALARA ASSESSMENT AS PER SP-P-35-067, ALARA REVIEW AND EVALUATION.
Is an ALARA Review Required? [ ] YES [X] NO (if YES, THEN attach form)

(18) PRE-JOB BRIEF REQUIRED? [ ] YES [X] NO

| (19) DOSIMETRY | | (20) REQUIRED TRAINING | |
|---|---|---|---|
| [ ] Special Bioassay *(See Comments)* | [ ] Job Specific TLD | [ ] Rad Worker I | [X] Respirator Training |
| [ ] Direct Reading Dosimeter | [ ] Extremity Dosimetry | [X] Rad Worker II | [ ] Other: *(Specify Below)* |

(21) COMMENTS: ALL TOOLS AND EQUIPMENT MUST BE MONITORED BY RCT. ALL PERSONNEL MUST PERFORM WHOLE BODY MONITORING AT PCM-18 LOCATED AT PIT 1 CP/SCA WHEN EXITING CONTAMINATION AREA.

(22) WORK PERMIT PPE REQUIREMENTS ATTACHED: [X] YES [ ] NO

APPROVALS — *Signee verifies FERMCO Work Permit, PPE Requirements, Health & Safety Plan, or other additional documentation have been reviewed and approves of the requirements of the RWP.*

| | | | |
|---|---|---|---|
| (23) RCT SUPERVISOR: James Connally | DATE: 8/16/94 | (24) RADIOLOGICAL ENGINEERING: | DATE: |
| (25) RADIOLOGICAL COMPLIANCE: | DATE: | (26) REQUESTOR (CONCURRENCE): Phil Williams | DATE: 8-16-94 |
| (27) RCT SIGNATURE: F. Maess | | RCT OFFICE LOCATION: T-62 | DATE ISSUED: 8-16-94 / TIME ISSUED: 0900 |
| RCT PRINTED NAME: F. MAESS | | RCT PHONE: 595-8636 Pager | |

PART II - BRIEFING GUIDANCE SHEET *(APPLICABLE ONLY IF BRIEFING IS REQUIRED)*

| | |
|---|---|
| SCOPE OF WORK TO BE PERFORMED | RADIOLOGICAL CONTROL HOLD POINTS |
| RADIOLOGICAL CONDITIONS OF THE WORKPLACE | COMMUNICATION AND COORDINATION WITH OTHER GROUPS |
| PROCEDURAL AND RWP REQUIREMENTS | PROVISIONS FOR HOUSEKEEPING AND FINAL CLEANUP |
| SPECIAL RADIOLOGICAL CONTROL REQUIREMENTS | EMERGENCY RESPONSE PROVISIONS |
| RADIOLOGICALLY LIMITING CONDITIONS (Radiation and/or contamination levels that may void the RWP) | PROVISIONS FOR HOUSEKEEPING AND FINAL CLEANUP |

| NO | DISTRIBUTION OF COPIES |
|---|---|
| 1 | JOB SITE |
| 2 | RCT SUPERVISOR |
| 3 | DOSIMETRY MANAGER |

FS-F-1372 (REV. 11/18/93)

[ ] RWP CONTINUED ON NEXT PA

FEMP

# RADIOLOGICAL WORK PERMIT

*This permit is only valid when attached to a FERMCO WORK PERMIT.*

(1) WORK PERMIT NUMBER: 36874

PAGE: 1

PART I - RADIOLOGICAL CONTROL REQUIREMENTS

| (2) TODAY'S DATE: | (3) TIME: | (4) ESTIMATED COMPLETION DATE | |
|---|---|---|---|
| 8-16-94 | 0820 | 8-18-94 | |
| (5) BUILDING/PLANT: PLANT 1 | (6) LEVEL: 500-649 | (7) COORDINATES | (8) PLANT JOB NUMBER: |
| (9) [redacted] | | (10) [illegible] 6427 | (11) ESTIMATED JOB MAN-H 60 |

| (12) STAY TIME: | (13) STAY TIME BASIS (Determined by Radiological Engineering): | |
|---|---|---|
| N/A | SKIN | LIMITING DOSE RATE |
| | WHOLE BODY | IF AIRBORNE |
| | EXTREMITY | SURVEY I.D. NUMBER |
| HOURS/WEEK | AIRBORNE | HIGHEST C LEVEL ON PIPING INSUL. 30 |

NOTICE *Post most recent survey data at the work site.*

| (14) COVERAGE REQUIREMENTS | (15) AIR MONITORING REQUIREMENTS | (16) CONTAMINATION CONT |
|---|---|---|
| [X] INTERMITTENT COVERAGE | [ ] CONTINUOUS AIR MONITOR (Type: ) | [ ] HEPA VENTILATION: # |
| [ ] CONTINUOUS COVERAGE | [X] BREATHING ZONE AIR SAMPLER (PAS) | [ ] HEPA VACUUM: # |
| [ ] NOTIFY RC EACH SHIFT WHEN RWP IS USED | [ ] GENERAL AREA AIR SAMPLING | [ ] AREA ISOLATION |
| [ ] OTHER: | [ ] OTHER: | [ ] CONTAINMENT DEVICE |
| [ ] OTHER: | [ ] OTHER: | [ ] OTHER: |

(17) COMPLETE AN ALARA ASSESSMENT AS PER SP-A-38-067, ALARA REVIEW AND EVALUATION.
Is an ALARA Review Required? [ ] YES [X] NO (If YES, THEN attach form)

(18) PRE-JOB BRIEF REQUIRED? [ ] YES [X] NO

| (19) DOSIMETRY | | (20) REQUIRED TRAINING | |
|---|---|---|---|
| [ ] Special Bioassay *(See Comments)* | [ ] Job Specific TLD | [ ] Rad Worker I | [X] Respirator Training |
| [ ] Direct Reading Dosimeter | [ ] Extremity Dosimetry | [X] Rad Worker II | [ ] Other: *(Specify Belo* |

(21) COMMENTS: ALL TOOLS AND EQUIPMENT MUST BE MONITORED BY RCT. ALL PERS MUST PERFORM WHOLE BODY MONITORING AT PCM-18 LOCATED AT PIT 1 CP/SCA EXITING CONTAMINATION AREA.

(22) WORK PERMIT PPE REQUIREMENTS ATTACHED: [X] YES [ ] NO

**APPROVALS** *Signee verifies FERMCO Work Permit, PPE Requirements, Health & Safety Plan, or other additional documentation have been reviewed and approves of the requirements of the RWP.*

| | | | |
|---|---|---|---|
| (23) RCT SUPERVISOR: James Conaty | DATE: 8/16/94 | (24) RADIOLOGICAL ENGINEERING: | DATE |
| (25) RADIOLOGICAL COMPLIANCE: | DATE: | (26) REQUESTOR (CONCURRENCE): Rick Williams | DATE 8- |
| (27) RCT SIGNATURE: Fred J Maess | | RCT OFFICE LOCATION: T-62 | DATE ISSUED: 8-16-94 / TIME: 0 |
| RCT PRINTED NAME: F. MAESS | | RCT PHONE: 595-8636 Pager | |

PART II - BRIEFING GUIDANCE SHEET *(APPLICABLE ONLY IF BRIEFING IS REQUIRED)*

| | |
|---|---|
| SCOPE OF WORK TO BE PERFORMED | RADIOLOGICAL CONTROL HOLD POINTS |
| RADIOLOGICAL CONDITIONS OF THE WORKPLACE | COMMUNICATION AND COORDINATION WITH OTHER GROU |
| PROCEDURAL AND RWP REQUIREMENTS | PROVISIONS FOR HOUSEKEEPING AND FINAL CLEANUP |
| SPECIAL RADIOLOGICAL CONTROL REQUIREMENTS | EMERGENCY RESPONSE PROVISIONS |
| RADIOLOGICALLY WORKING CONDITIONS [illegible] | PROVISIONS FOR HOUSEKEEPING AND FINAL CLEANUP |

| NOTIFICATION OF COPIES |
|---|
| 1. [illegible] |
| 2. RCT SUPERVISOR |
| 3. DOSIMETRY MANAGER |

FSA-1372 (REV. 11-18-93)

[ ] RWP CONTINUED

FERMCO

# WORK PERMIT PPE REQUIREMENTS

WORK PERMIT NUMBER 36874 | Page 2 of 2

| | | | |
|---|---|---|---|
| **HEAD PROTECTION** | ☐ Surgeon's Cap | ☐ Face Shield | ☑ Safety Glasses |
| ☐ None | * ☑ Anti-C Hood | ☐ Welding Goggles | ☐ Other _____ |
| | ☐ Goggles | ☐ Hard Hat | ☐ Other _____ |
| GLOVES | ☑ Cotton OVER VINYL (work gloves) | ☐ Leather Palm | ☐ No Gloves |
| ☐ None | ☐ [illegible] | ☐ [illegible] | ☐ Other _____ |
| | * ☑ [illegible] | ☐ [illegible] | ☐ Other _____ |
| **PROTECTIVE CLOTHING** | ☐ Production Coveralls | ☐ Saranex Coveralls | ☑ Disposable Shoecovers |
| ☐ Double set PPE* | ☐ Smock | ☐ Jacket Clothings | ☑ Safety Shoes |
| ☐ None | ☐ Rain Suit | ☐ [illegible] | ☐ Other _____ |
| *Requires IH Concurrence | * ☑ Tyvek Coveralls | ☐ Fire Retardant | ☐ Other _____ |
| | ☐ Cloth Coveralls | ☑ Rubber Shoecovers | ☐ Other _____ |
| **RESPIRATOR** | * ☑ Half Mask | ☐ Belt Mounted Half Mask APR | ☐ Air Line with Dual Flow |
| ☐ None | ☐ Full Face APR | ☐ Air Line Half Mask | ☐ Hooded Airline |
| | ☐ Powered APR | ☐ Air Line with Escape | ☐ SCBA |
| | ☐ Continuous Flow Airline | ☐ Pressure Demand Airline | ☐ Other _____ |
| **CARTRIDGE** | * ☑ HEPA | ☐ Organic/HEPA Combination | ☐ Mercury |
| ☐ None | ☐ HF Canister | ☐ Organic Vapor | ☐ Ammonia/HEPA |
| | ☐ Ammonia | ☐ Acid Gas | ☐ Other _____ |
| **OTHER** | ☐ Ear Plugs | ☐ Cool Vest | ☐ Other _____ |
| ☐ None | ☐ Ear Muffs | ☐ Other _____ | ☐ Other _____ |

| SPECIAL SAFETY INSTRUCTIONS | RESPONSIBLE DEPARTMENT |
|---|---|
| * Asbestos Removal Min Req'd. | ITEM NUMBER (IH, RC, and/or F&S) |

NO DISTRIBUTION OF COPIES

[illegible] 8-16-94

RMCO
# WORK PERMIT

WORK PERMIT NUMBER: 3687

**SECTION A - BACKGROUND INFORMATION** *(Completed by Supervisor-In-Charge)*

WORK PERMIT: CM 2826
JOB START DATE: [redacted]
ESTIMATED COMPLETION DATE: [redacted]
CONSTRUCTION WORK ORDER NUMBER
COMPANY: RSO/ MAINT
EXACT LOCATION: PLT 1, DETREX STI
REMOVE ACM PI, FROM STEAM LINES,

PROJECT ENGINEER/CONSTRUCTION COORDINATOR: PHIL A. WILLIAMS
BADGE NUMBER: 232
PHONE/RADIO NUMBER: 6427-258

**SECTION B - TYPES OF PERMITS REQUIRED** *(Completed by Supervisor-In-Charge)*

- ☐ OUTAGE
- ☐ PENETRATION
- ☑ ELECTRIC (posted)
- ☐ CHEM HAZ MATERIAL (posted)
- ☐ CONFINED SPACE (posted)
- ☐ OPEN FLAME/WELDING (posted)
- ☐ HAZARDOUS WORK (posted)
- ☑ RADIOLOGICAL (posted)

**SECTION C - GENERAL PRECAUTIONS** *(Completed by Supervisor-in-Charge)*

| PRELIMINARY | REQ'D. | DNA | AREA ISOLATION | REQ'D. |
|---|---|---|---|---|
| 1. Check for Utilities | ☐ | ☑ | 20. Area Barricades RED TAPE | ☑ |
| 2. Health & Safety Plan | ☐ | ☑ | 21. Signs (PPE) | ☐ |
| 3. Work Plan | ☐ | ☑ | 22. Signs (Warning) DANGER ASB. | ☑ |
| 4. Working surface safe for load (especially roof work) | ☐ | ☑ | 23. BARRICADED TAG | ☑ |
| 5. | ☐ | ☐ | 24. | ☐ |
| **ENERGY CONTROL (Lock & Tag)** | | | **OTHER CONTROLS** | |
| 6. Electrical | ☐ | ☑ | 25. Exhaust Ventilation | ☐ |
| 7. Chemical | ☐ | ☑ | 26. Supplied Air Ventilation | ☐ |
| 8. Mechanical | ☐ | ☑ | 27. GFCI | ☑ |
| 9. Other (Steam, etc.) DISCONNECT | ☐ | ☑ | 28. Screen/Shield | ☐ |
| 10. Specific Equipment Plan Required | ☐ | ☑ | 29. Non-Sparking Tools | ☐ |
| 11. | ☐ | ☐ | 30. Intrinsically Safe Equipment | ☐ |
| **ACCIDENT PREVENTION** | | | 31. | ☐ |
| 12. Fire Extinguisher | ☐ | ☑ | **EGRESS/FALL PROTECTION** | |
| 13. Safety Shower Operable & Less Than 100 ft. Away | ☐ | ☑ | 32. Ladder | ☑ |
| 14. Eye Wash Operable & Less than 100 ft. Away | ☐ | ☑ | 33. Scaffolds/Railings | ☐ |
| 15. Protection PLASTIC COVER | ☑ | ☐ | 34. High Lift Platform | ☐ |
| 16. Communications | ☐ | ☑ | 35. Safety Belt | ☐ |
| 17. Magnetic Survey for Buried Utilities/Objects | ☐ | ☑ | 36. Safety Harness | ☐ |
| 18. | ☐ | ☐ | 37. Safety Line | ☐ |
| [redacted] | ☐ | ☐ | 38. Tripod/Retrieval System | ☐ |

[redacted] BADGE NUMBER: 0232 DATE: 8-11-94

LOCK TAGS REMOVED - APPROVAL TO PERFORM WORK

[redacted] BADGE NUMBER: 733 DATE: 8/16/94

| NO. | DISTRIBUTION OF COPIES |
|---|---|
| | Performing Shop |
| | Supervisor-in-Charge |
| | Shop Foreman |

IN CASE OF EMERGENCY: CALL "CONTROL" BY RADIO/ PHONE 6511, OR USE NEAREST FIRE ALARM BOX.

PERMIT TERMINATION (WORK COMPLETED, JOB CONDITIONS HAVE CHANGED)

Return Copy to OSSH (MS 831)

000082

AUG 11 1994

# ASBESTOS DOCUMENTATION

DRUM OR BOX NO.

| BAG NO. | W.O. NO. | BLDG. | LEVEL | WEIGHT | FEET | SIZE |
|---|---|---|---|---|---|---|
| 1 | CM 2613 | 2/3 | 1ST | 26 | 4 | 3" |
| 2 | " " | " | " | 30 | 4 | 3" |
| 3 | CM 2833 | | | | | |
| 4 | CM 2849 | [illegible] | | 25 | MISC | |
| 5 | CM 2251 | | | 29 | 7 | 3"+2 |
| 6 | | | | 28 | 7 | |
| 7 | | | | 24 | 7 | |
| 8 | | | | 50 | 14 | |
| 9 | | | | 35 | 6 | " |
| 10 | | | | 14 | MISC | |
| 11 | | | | 29 | 6 | 3+2" |
| 12 | CM 1899 | 2/3 | 1ST | 70 | 2 FT | |
| 13 | | 2/3 | 1ST | 43 | 1 FT | |
| 14 | | 2/3 | 1ST | 9 | MISC | |
| | | | | | | |
| | CM | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | CM 922 | [illegible] | | 52 | 3 | |
| | | | | | | |

| FEMP | RADIOLO[illegible]AL SURVEY REPORT COVE[illegible]HEET | | SURVEY NUMBER: 94-08-68-1[illegible] |
|---|---|---|---|
| DATE: 8-6-94 | LOCATION: PLANT 1 FIRST FL. | [redacted] | BADGE: 656/7635 |
| TIME: 18:00 | LEVEL: 580' | [redacted] | |
| WORK PERMIT NUMBER: Task Order # T1051 | | [redacted] | BADGE: 7615 |
| RWP NUMBER: N/A | | [redacted] | DATE: 8/6/94 |

| ATTACHMENTS: | | |
|---|---|---|
| 4 pages | Survey sheet | N/A |
| | Hard copy | |
| | — N/A — | |

| REASON FOR SURVEY | Pre-RWP survey of DETRIX Still. |
|---|---|

**SUMMARY:** DETRIX Still is to be dismantled and packaged. Holdup material is to be removed.

N/A

| NO. | DISTRIBUTION OF COPIES |
|---|---|
| 1 | RECORD |
| 2 | DOS |
| 3 | HSA MANAGER |

000084

FSF

[redacted]

# FEMP
# RADIOLOGICAL SURVEY REPORT

N/A 94-08-68-12

DATE: 8-16-94 LOCATION: Pit 1 PAGE: 3 of 5

TIME: 1100 LEVEL: Surf

REASON FOR SURVEY: Pre-Start Survey for the Removal of the Debris Still

## INSTRUMENTS

| MODEL | SERIAL NUMBER | TYPE (α, β, γ) | CALIBRATION-DUE DATE | BKGD. (cpm) | EFF./CF | COUNT TIME (min) | MDA (dpm) | INSP./PERFORMANCE TEST SAT? YES | NO |
|---|---|---|---|---|---|---|---|---|---|
| AB5100 | 78 | α/βγ | 9/2/94 | 34/2.04 | 186/411 | 0.5 | 40.7/30.8 | X | |
| 3 | 10365 | βγ | 2/95 | 400 | 30 | N/A | 3000 | X | |
| RO3C | 570 | βγ | 12/94 | N/A | 3 | N/A | N/A | X | |
| | | | | N/A | | | | | |

| ITEM NUMBER | LOCATION AND/OR DESCRIPTION | HEIGHT (ft.) | DPM/100cm² ALPHA REMOVABLE | DPM/100cm² ALPHA FIXED PLUS REMOVABLE | DPM/100cm² BETA-GAMMA REMOVABLE | DPM/100cm² BETA-GAMMA FIXED PLUS REMOVABLE | CORRECTED DOSE RATE (MREM/HR) γ CONTACT | γ AT ___ FT. | β CONTACT | β AT ___ FT. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Floor | | 159 | | 408 | 30K | <0.5 | | <0.5 | |
| 2 | Floor | | 257 | | 1016 | 24K | <0.5 | | <0.5 | |
| 3 | Floor | | 215 | | 778 | 60K | <0.5 | | <0.5 | |
| 4 | Floor | | 243 | | 1065 | 240K | <0.5 | | <0.5 | |
| 5 | N. Side Debris Tank | | 89 | | 194 | 9K | <0.5 | | <0.5 | |
| 6 | Press Brake | | 250 | | 1119 | 60K | <0.5 | | <0.5 | |
| 7 | Motor | | 145 | | 632 | 60K | <0.5 | | <0.5 | |
| 8 | Base | | 222 | | 1357 | 72K | <0.5 | | <0.5 | |
| 9 | Refrigerator Tank | | 75 | | 199 | 30K | <0.5 | | <0.5 | |
| 10 | Refrigerator Tank | | 173 | N/A | 608 | 30K | <0.5 | | <0.5 | N/A |
| | Condenser | | 340 | | 1143 | <MDC2 | <0.5 | | <0.5 | |
| 12 | Spin Box | | 40 | | 165 | 30K | <0.5 | | <0.5 | |
| 13 | Feed Stock Tank | | 47 | | 50 | <MDC2 | <0.5 | | <0.5 | |
| 14 | [illegible] | | 40 | | 155 | <MDC2 | <0.5 | | <0.5 | |
| 15 | Floor | | 285 | | 890 | 30K | <0.5 | | <0.5 | |
| 16 | Floor | | 145 | | 569 | 30K | <0.5 | | <0.5 | |
| 17 | [illegible] | | 54 | | 55 | [illegible] | <0.5 | | <0.5 | |
| 18 | Support Beam | | 75 | | 150 | <MDC2 | <0.5 | | <0.5 | |
| 19 | East Side of Tank | | 151 | | 476 | <MDC2 | <0.5 | | <0.5 | |
| 20 | East Side of Tank | | 117 | | 210 | 30K | <0.5 | | <0.5 | |

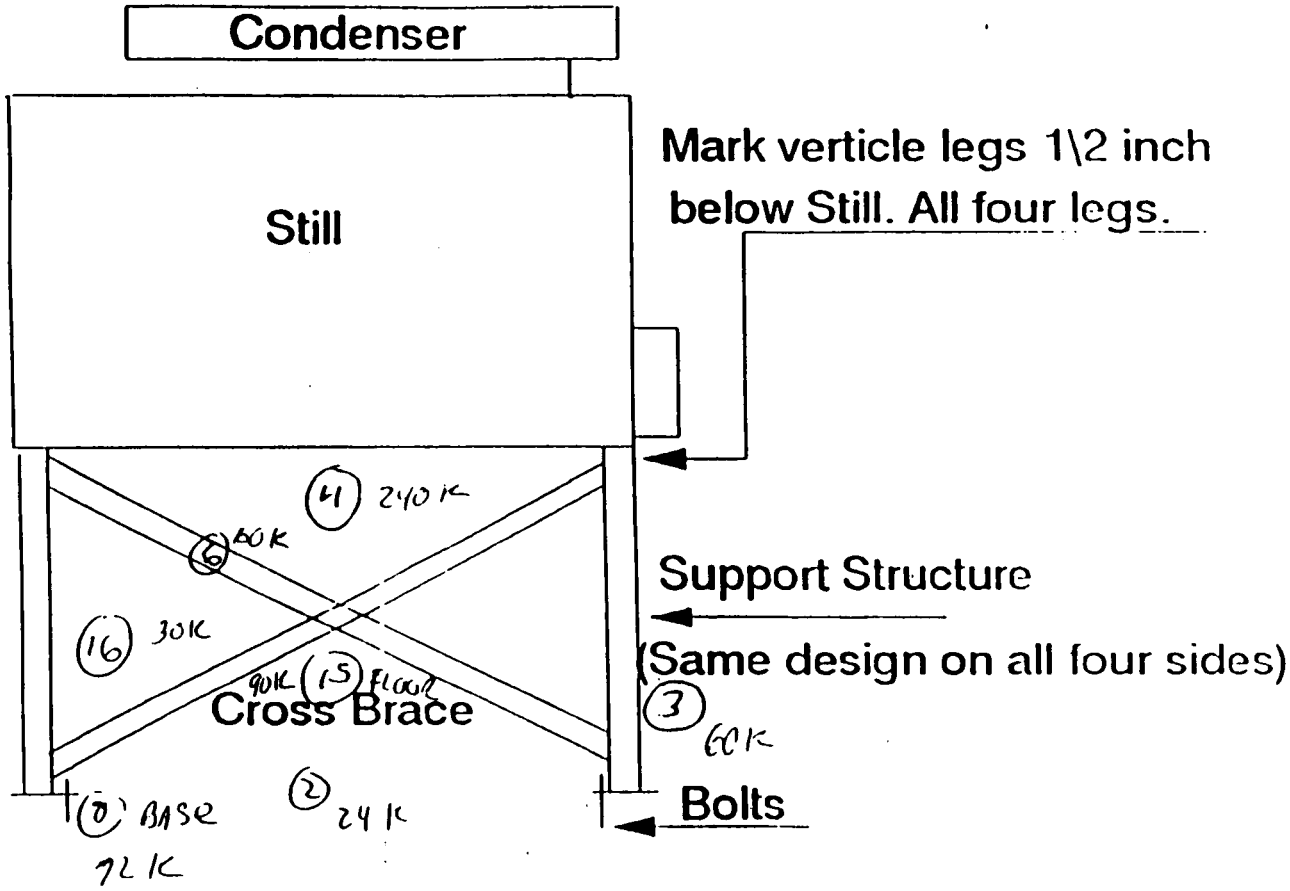
| NO | DISTRIBUTION OF COPIES |
|---|---|
| 1 | FCT Supervisor |
| 1 | Facility Supervisor |
| 1 | ORL Manager |

NOTIFICATION OF SURVEY RESULTS

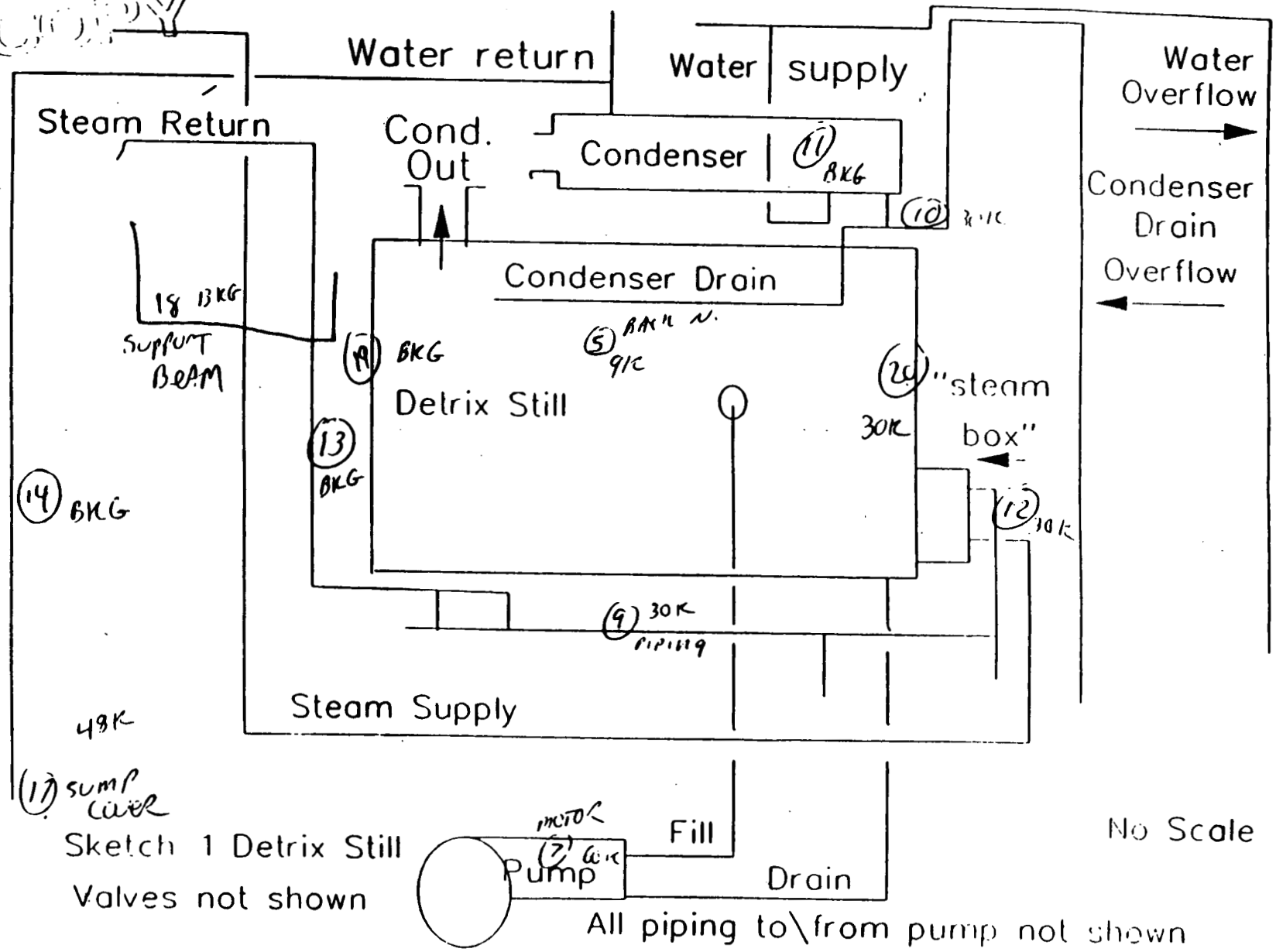
| SUPERVISOR NOTIFIED | TIME | DATE | NOTIFIED BY | REVIEWED BY | DATE |
|---|---|---|---|---|---|
| N/A | | | | | 8/16/94 |

930000

29 3 of 45




SKETCH 3




COPY

00072211

FRI AUG 05, 1994 17:4[illegible]:10
GROUP A SMEARS (0.5 M[illegible] COUNT)

Pg 5 of 5

| SAMPLE NUMBER | COUNT TIME | GROSS ALPHA | GROSS B-g | DPM ALPHA | DPM B-g | TIME COUNTED |
|---|---|---|---|---|---|---|
| 1 | 0.50 | 23 | 65 | 159 | 408 | 17:49:13 |
| 2 | 0.50 | 37 | 210 | 257 | 1016 | 17:49:58 |
| 3 | 0.50 | 31 | 161 | 215 | 778 | 17:50:43 |
| 4 | 0.50 | 35 | 220 | 243 | 1065 | 17:51:28 |
| 5 | 0.50 | 13 | 41 | 39 | 194 | 17:52:13 |
| 6 | 0.50 | 36 | 231 | 250 | 1119 | 17:52:58 |
| 7 | 0.50 | 21 | 131 | 145 | 632 | 17:53:43 |
| 8 | 0.50 | 32 | 280 | 222 | 1357 | 17:54:28 |
| 9 | 0.50 | 11 | 42 | 75 | 199 | 17:55:13 |
| 10 | 0.50 | 25 | 126 | 173 | 608 | 17:55:58 |
| 11 | 0.50 | 50 | 236 | 348 | 1143 | 17:56:43 |
| 12 | 0.50 | 6 | 35 | 40 | 165 | 17:57:28 |
| 13 | 0.50 | 7 | 13 | 47 | 58 | 17:58:13 |
| 14 | 0.50 | 6 | 33 | 40 | 155 | 17:58:58 |
| 15 | 0.50 | 41 | 184 | 285 | 890 | 17:59:43 |
| 16 | 0.50 | 21 | 118 | 145 | 569 | 18:00:28 |
| 17 | 0.50 | 3 | 13 | 54 | 58 | 18:01:13 |
| 18 | 0.50 | 11 | 32 | 75 | 150 | 18:01:58 |
| 19 | 0.50 | 19 | 99 | 131 | 476 | 18:02:43 |
| 20 | 0.50 | 17 | 46 | 117 | 218 | 18:03:28 |

OPERATION COMPLETE

OPERATION COMPLETE

PIPE SHOP & ASBESTOS SHOP

SUPERVISOR : PHIL WILLIAMS

M T W T F DATE 8/19/94 94

ASBESTOS SHOP (A-TEAM) NP 194

| BADGE NAME | CRAFT | WORK ORDER NO | ASSIGNMENT(s) |
|---|---|---|---|
| 1462 [redacted] | 55 | NP 101 | SICK |
| 2772 [redacted] | 55 | CM 922 | Sump Removal |
| 3246 [redacted] | 55 | CM 2826 | Pt. 1 Removal |
| 3203 [redacted] | 55 | NP 430<br>CM 2826 | 12:00 IN-VIVO<br>Pt. 1 Removal |
| 3347 [redacted] | 55 | CM922 | Sump Removal |
| | | | |
| | | | |
| | | | |

PIPE SHOP # 39 NP 199

| | | | |
|---|---|---|---|
| 1150 - [redacted] | 55 | CM2633 | Pt. 9 Cond. Line |
| 0841 - [redacted] | 55 | NP100 | Vac |
| 1002 - [redacted] | 55 | CM2633 | Pt. 9 Cond. Line |
| 0842 - [redacted] | 55 | — | PM's |
| | | | |

CRAFTPERSON ON LOAN TO PIPE SHOP

| | | | | |
|---|---|---|---|---|
| 1400 - [redacted] | 55 | — | PM's | |
| 0813 - [redacted] | 55 | CM2633 | Pt. 9 Cond. Line | MARK TAKING CARE OF CARD |
| | | | | |
| | | | | |
| | | | | |

NOTES: 7:15 SAFETY MTG.

PIPE SHOP & ASBESTOS SHOP

SUPERVISOR : PHIL WILLIAMS

M T W | T | F DATE 8 / 18 9

ASBESTOS SHOP (A-TEAM) NP 194

| BADGE | NAME | CRAFT | WORK ORDER NO | ASSIGNMENT(s) |
|---|---|---|---|---|
| 1462 | [redacted] | 55 | NP 101 | SICK |
| 2772 | [redacted] | 55 | CM 922 | SUMP REMOVAL |
| 3246 | [redacted] | 55 | CM 2826 | PLT. 1 ~~SUMP~~ REMOVAL |
| 3203 | [redacted] | 55 | CM 2826 | PLT. 1 REMOVAL |
| 3347 | [redacted] | 55 | CM 922 | SUMP REMOVAL |
| | | | | |
| | | | | |
| | | | | |

PIPE SHOP # 39 NP 199

| | | | | |
|---|---|---|---|---|
| 1150 - | [redacted] | 55 | | |
| 0841 - | [redacted] | 55 | CM 2633 | PLT. 9 COND. LINE |
| 1002 - | [redacted] | 55 | CM 2633 | PLT. 9 COND. LINE |
| 0842 - | [redacted] | 55 | — | PM'S |
| | | | | |

CRAFTPERSON ON LOAN TO PIPE SHOP

| | | | | |
|---|---|---|---|---|
| 1400 - | [redacted] | 55 | | |
| 0813 - | [redacted] | 78 | CM 2633 | PLT. 9 COND. LINE |
| | | | | |
| | | | | |
| | | | | |

NOTES: NP 261 SAFETY MTG DAY

000090

PIPE SHOP & ASBESTOS SHOP

SUPERVISOR : PHIL WILLIAMS

M T (W) T F DATE 8 / 17 94

ASBESTOS SHOP (A-TEAM) NP 194

| BADGE | NAME | CRAFT | WORKORDER NO | ASSIGNMENT(s) | |
|---|---|---|---|---|---|
| 1462 | [redacted] | 55 | NP101 | OFF SICK | |
| 2772 | [redacted] | 55 | NP271<br>CM 922 | VISIT TO MEDICAL 7:00 A.M.<br>SUMP REMOVAL | PERMITS |
| 3246 | [redacted] | 55 | CM 2826 | PLT. 1 REMOVAL | PUMPS |
| 3203 | [redacted] | 55 | CM 2826 | PLT. 1 REMOVAL | PUMPS |
| 3347 | [redacted] | 55 | NP102<br>CM 922 | LEAVING EARLY 1HR<br>SUMP REMOVAL | PERMITS |
| | | | | | |
| | | | | | |
| | | | | | |

PIPE SHOP # 39 NP 199

| | | | | | |
|---|---|---|---|---|---|
| 1150 | [redacted] | 55 | CM 1359 | 2/3 PIPING | |
| 0841 | [redacted] | 55 | NP234<br>CM 2633 | FIREFIELD TEC 1130 ~ 1630<br>PLT 9. COND. LINE | |
| 1002 | [redacted] | 55 | CM 2633 | PLT 9 COND. LINE | |
| 0842 | [redacted] | 55 | — | P.M's | |
| | | | | | |

CRAFTPERSON ON LOAN TO PIPE SHOP

| | | | | | |
|---|---|---|---|---|---|
| 1400 | [redacted] | 55 | CM 1359 | 2/3 PIPING | |
| | | | | | |
| ■ | [redacted] | 78 | CM 2633 | PLT 9. COND. LINE. | WELDING. |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

NOTES: Safety Mtg.

PIPE SHOP & ASBESTOS SHOP

SUPERVISOR : PHIL WILLIAMS

M | T | W T F DATE 8/16/94

ASBESTOS SHOP (A-TEAM) NP 194

| BADGE | NAME | CRAFT | WORK ORDER NO | ASSIGNMENT(s) |
|---|---|---|---|---|
| 1462 | [redacted] | 55 | NP101 ~~NP460~~ | SICK ~~SHOP~~ |
| 2772 | [redacted] | 55 | CM 2251 CM 922 | PLT.5 RE-INSULATE Sump REMOVAL |
| 3246 | [redacted] | 55 | CM2826 | PLT.1 REMOVAL |
| 3203 | [redacted] | 55 | CM 2826 | PLT.1 REMOVAL |
| 3347 | [redacted] | 55 | CM 2251 CM922 | PLT.5 RE-INSULATE Sump REMOVAL |
| | | | | |
| | | | | |
| | | | | |

PIPE SHOP # 39 NP 199

| | | | | |
|---|---|---|---|---|
| 1150 | [redacted] | 55 | CM2801 | PLT.8 SUMP LINE |
| 0841 | [redacted] | 55 | CM2633 | PLT.9 COND. LINE |
| 1002 | [redacted] | 55 | CM2633 | PLT.9 COND. LINE |
| 0842 | [redacted] | 55 | — | PM's |
| | | | | |

CRAFTPERSON ON LOAN TO PIPE SHOP

| | | | | |
|---|---|---|---|---|
| 1400- | [redacted] | 55 | CM2801 | PLT.8 SUMP LINE |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

NOTES:

000092

PIPE SHOP & ASBESTOS SHOP

SUPERVISOR : PHIL WILLIAMS

M T W T F DATE 8/15/94

ASBESTOS SHOP (A-TEAM) NP 194

| BADGE | NAME | CRAFT | WORK ORDER NO | ASSIGNMENT(s) |
|---|---|---|---|---|
| 1462 | [redacted] | 55 | NP101<br>~~CM 2251~~ | OFF SICK<br>~~RE-INSULATE~~ |
| 2772 | [redacted] | 55 | NP271<br>CM 2251 | 12:30 IN-VIVO<br>RE-INSULATE |
| 3246 | [redacted] | 55 | CM2826<br>CM 2333 | PLT. 1 REMOVAL<br>BLDG. 20 CLEAN-UP |
| 3203 | [redacted] | 55 | CM 2826<br>CM 2333 | PLT. 1 REMOVAL<br>BLDG. 20 CLEAN-UP |
| 3347 | [redacted] | 55 | CM 2251 | RE-INSULATE |
| | | | | |
| | | | | |
| | | | | |

PIPE SHOP # 39 NP 199

| | | | | |
|---|---|---|---|---|
| 1150 | [redacted] | 55 | CM 2801 | PLT. 8 SUMP LINE |
| 0841 | [redacted] | 55 | NP 231<br>CM 2633 | 1-3 C.O.M. TRG.<br>PLT. 9 COND. LINE |
| 1002 | [redacted] | 55 | CM 2633 | PLT. 9 COND. LINE |
| 0842 | [redacted] | 55 | NP102 | OFF PERSONAL |
| | | | | |

CRAFTPERSON ON LOAN TO PIPE SHOP

| | | | | |
|---|---|---|---|---|
| 1400- | [redacted] | 55 | CM 2801 | PLT. 8 SUMP LINE |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

NOTES:

000054



For distribution to WEMCO Contact points

Please inform Environmental Compliance, X6053, of any changes to schedule, removal amounts or removal contractor.

WEEKLY REPORT OF

08/22/94

ASBESTOS NOTIFICATION FORMS ON FILE
WITH ENVIRONMENTAL COMPLIANCE

| Bld/ Plant ID | Project Name/ Location | Project Number | Amount Linear Feet | Amount Square Feet | TYPE | Material | Start Date | Comp. Date | WEMCO NOI Returned Complete | NOI | FEMP SERIAL NUMBER FEMP- | REV # | NOI To OEPA | Percent Complete |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ** WEMCO Contact: KARNES, M | | Mail Stop: 56 | | | | | | | | | | | | |
| 18 | RMV PI ON WTR LN N.W. GEN SUMP | CN 009220000 | 53 | 0 | PI | | 08/16/94 | 08/23/94 | 08/15/94 | YES | 94-001 | AY | / / | 90 |
| 1 | RMV PI TO DETREX SILL | CN0028260000 | 26 | 0 | PI | | 08/15/94 | 08/19/94 | 08/15/94 | YES | 94-001 | AZ | / / | 100 |

# ATTACHMENT C

# SAMPLING DOCUMENTATION

Item 1 - FEMP Site Media Sampling PSAP

Item 2 - SMS Sampling Field Logs - Tank Residues

Item 3 - SMS Chain of Custody - Tank Residues

Item 4 - SMS Sampling Field Logs - Scabbled Concrete

Item 5 - SMS Chain of Custody - Scabbled Concrete

Item 6 - SMS Sampling Field Logs - Decontamination Solution

Item 7 - SMS Chain of Custody - Decontamination Solution

ENSERCH ENVIRONMENTAL
DETREX STILL - HAZARDOUS WASTE MANAGEMENT UNIT No. 26
CERTIFICATION REPORT

# Item 1 - FEMP Site Media Sampling PSAP

FERMCO
P.O. BOX 398704
Cincinnati, OH. 45239-8704

**FACSIMILE LEAD SHEET**

No. of Pages(Including coversheet): 1

DATE: September 26, 1994

TO: Bob White

COMPANY NAME: Quanterra

LOCATION: Earth City, MO.

FAX NO. TO BE CALLED: (314) 298-8757 TELEPHONE NO.: (314) 298-8566

FROM: Larry Evans Fax NO.: (513) 738-6667
TELEPHONE NO.: (513) 738-9269

**********

**MESSAGE**

SUBJECT: Pest/PCB instructions for the sample 200093969, FERMCO release 1000004002, Detrex Still closure.

Bob,

The Pest/PCB sample 200093969, 40 ml vial, in releases 4002 should be supplemented with extra volume from FERMCO samples 200093964 and 200093965. This should be enough sample volume to perform all of the requested analysis. Place a copy of this fax transmission in the data package. Reference this fax transmission in the Case narrative.

If you have any questions or concerns, please contact me.

Thank you,

Larry Evans

# PROJECT SPECIFIC PLAN

# FOR

# HWMU #26 - DETREX STILL -

# CLOSURE SAMPLING AND ANALYSIS

**RI/FS WBS NUMBER 04.48.01**

**REVISION 0**

**August 30, 1994**

CONTROLLED

Prepared by

Fernald Environmental Restoration Management Corporation

Prepared for

U.S. Department of Energy
Fernald Field Office

Under Contract DE-AC05-92OR21972

**PROJECT SPECIFIC PLAN**
**FOR HWMU #26 - DETREX STILL -**
**CLOSURE SAMPLING AND ANALYSIS**
**RI/FS WBS NUMBER 04.48.01**
**REVISION 0, AUGUST 29, 1994**

**APPROVAL:**

Karen Wintz for Ken Kolthoff 8/30/94
Ken Kolthoff, Manager Date
Detrex Still Hazardous Waste Management Project

8/29/94
Fred Ford, Manager Date
Quality Assurance Department

Lawrence Love Jr. for L. K. Rogers 8/29/94
Linda K. Rogers, Manager Date
Environmental Program Development

# TABLE OF CONTENTS


| SECTION | TITLE | PAGE |
|---|---|---|
| 1.0 | Introduction | 1 |
| 1.1 | Purpose | 1 |
| 1.2 | Scope | 2 |
| 1.3 | Organization Structure and Key Personnel | 2 |
| 2.0 | Field Sampling Information | 2 |
| 2.1 | Sample Field Site | 2 |
| 2.2 | Sample Locations | 3 |
| 2.2.1 | Detrex Still | 3 |
| 2.2.2 | Condenser Unit and Structural Frame | 4 |
| 2.2.3 | Concrete | 4 |
| 2.2.4 | Ancillary Piping | 4 |
| 2.3 | Additional Rounds of Sampling | 4 |
| 2.4 | Field Quality Assurance Samples | 4 |
| 2.5 | Chain of Custody Sample Information | 5 |
| 3.0 | QA/QC Requirements | 11 |
| 3.1 | Project Requirements for Self-Assessments, Surveillances | 11 |
| 3.2 | Field QA Samples | 11 |
| 4.0 | Equipment Decontamination | 12 |
| 5.0 | Required Equipment | 12 |
| 6.0 | Sample Extraction/Collection Procedure | 12 |
| 7.0 | Health & Safety | 13 |
| 8.0 | Disposition of Investigation-Derived Wastes | 13 |

## LIST OF TABLES


| TABLE | TITLE | PAGE |
|---|---|---|
| 1.1 | Key Project Personnel | 2 |
| 2.1 | Sample Identifiers and Locations | 5 |
| 2.2 | Chain of Custody Sample Information | 6 |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## LIST OF APPENDICES

| APPENDIX | TITLE |
|---|---|
| A | Data Quality Objectives |
| B | Project Specific Health and Safety Plan |
| C | Sample Location Map |
| D | FERMCO Sitewide Analytical Request/Chain of Custody Form |
| E | Required Equipment List |
| F | Sample Extraction Procedure |
| G | Environmental Monitoring Procedure, EP-SMS-013 "Disposition of Investigation-Derived Wastes" |

# 1.0 INTRODUCTION

The Detrex Still, located in Plant 1, operated as a waste recycling station from September 1956 until January 1981. The unit recovered chlorinated solvents including trichloroethylene, tetrachloroethylene, and 1,1,1-trichloroethane. In January 1981, the unit was partially disassembled and sections were removed from the original location. The unit was not emptied and still contains distillation residues. Because the Detrex Still has been utilized to store listed hazardous waste since 1981, it has been classified as a Hazardous Waste Management Unit (HWMU) under the Resource Conservation and Recovery Act (RCRA).

## 1.1 PURPOSE

This Project Specific Plan (PSP), affiliate Data Quality Objectives (DQO) WS-010 Rev. 1, WW-008 Rev. 1, and MS-007 Rev. 1 (Appendix A), and associated Project Specific Health and Safety Plan (PSHSP) (Appendix B) support the Closure Plan Information and Data (CPID) developed and approved for the Detrex Still HWMU. The objective of the PSP is to describe the field sampling activities and identify analyses to be performed by certified laboratories. Sampling and analyses activities shall be consistent with the Fernald Environmental Management Project (FEMP) Sitewide Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Quality Assurance Project Plan (SCQ).

The CPID and associated documents are in accordance with RCRA Interim Status, Ohio Administrative Code (OAC) 3745-55, Closure requirements 40 Code of Federal Regulations (CFR) Part 264 Subpart G. The closure field activities will be in conjunction with CERCLA removal and remediation actions at the FEMP, and in accordance with the July 1986 United States Environmental Protection Agency (USEPA)/Department of Energy (DOE) Federal Facilities Compliance Agreement, as amended by the Consent Agreement in September 1991. The closure of the Detrex Still is also subject to the State of Ohio- and DOE-stipulated amendment to the Consent Decree.

Samples of the residue in the Detrex Still, the combined decontamination solution resulting from the steam cleaning of the ancillary equipment, and the scabbled concrete at the base of the still shall be collected. Analytical results shall be utilized to characterize the residue in the still, the decontamination solution, and the scabbled concrete. Finalized data shall also be utilized to determine the regulatory status of the specified medias, and to select the proper handling, disposal, treatment, and storage of each material. Analytical data will influence the health and safety requirements for site personnel involved in the disposal, treatment, and storage of the material during decommissioning and disposal.

## 1.2 SCOPE

All samples shall be analyzed for eight RCRA metals, 32 volatile organics, semi-volatile organics, herbicides, total thorium, total uranium, and polychlorinated biphenyls (PCB). If a liquid phase is present in the still, the sample shall be analyzed for flashpoint in addition to the above-listed analytes. The scabbled concrete shall also be analyzed for reactive hydrogen cyanide, reactive hydrogen sulfide, pH, paint filter liquid test (PFLT) total organic halides, and natural and man-made isotopes (gamma spectroscopy) to be Envirocare Material Acceptance Criteria. Additional existing hazards associated with this sampling activity shall be addressed in the PSHSP (Appendix B).

## 1.3 ORGANIZATION STRUCTURE AND KEY PERSONNEL

The following table shows key personnel, including primary and secondary alternates, associated with the sampling effort of this project. Personnel represent the following groups: CERCLA/RCRA Unit 3 (CRU3), Environmental Programs Development (EPD), Remedial Support Operations (RSO), Environmental Field Operations (EFO), Radiological Control (RC), and Industrial Hygiene (IH).

**TABLE 1.1**

**KEY PROJECT PERSONNEL**

| PROJECT-SPECIFIC TITLE | PRIMARY | ALTERNATE |
|---|---|---|
| Project Engineer - CRU3 | Mike Heinen | Don Beheler |
| Project Manager - EPD | Mary Morse | Karen Voisard |
| Safe Shutdown Manager - RSO | Al Combs | Phil Rader |
| Industrial Hygienist - IH | Roger Grant | Jack Patrick |
| RC Engineer - RC | Kathleen Helle Arp | Tom Tomes |
| EPD Manager | Linda K. Rogers | Lawrence Love, Jr. |
| Field Coordinator - EPD | Lawrence Love, Jr. | Linda Rogers |
| Field Supervisor - EFO | Mike Schley | Lawrence Love, Jr. |

# 2.0 FIELD SAMPLING INFORMATION

## 2.1 SAMPLE FIELD SITE

Located on the former process-side of the FEMP facility, the Detrex Still is in Plant 1, which is situated north of Second Street, between "A" and "B" Streets. The unit is located in the north central part of the first floor of Plant 1. A map illustrating this area is attached as Appendix C.

## 2.2 SAMPLE LOCATIONS

The Detrex Still is approximately 2.67 feet wide and 6.33 feet long. The still is connected to structural frame; therefore, the top of the still is approximately 7.5 feet from the concrete floor. The condenser unit is located on top of the still. The still is covered by asbestos insulation. Pipes are still connected at the top and bottom of the still but have been isolated from the processing system. A box on the east end of the still shall be removed (by RSO/Safe Shutdown personnel) and the resulting opening shall be utilized for sampling (by EFO Sampling Technicians) and cleaning (by RSO/Safe Shutdown personnel) of the residue from the still. Prior to the removal of the box from the still, a stainless steel bowl or pail shall be placed beneath the opening to catch liquid that may be released. The immediate floor area should be covered with plastic and surrounded by a dike in the event of a spill.

### 2.2.1 Detrex Still

One composite sample of the residue, if available, is scheduled to be collected as outlined in Table 2.1. EFO Sampling Technicians shall scrape residue from the bottom and sides of the still directly into sample containers (for the volatile organic and semi-volatile organic analyses) and into a stainless steel pan (for the remaining analyses). The sample shall be considered a composite sample because the residue shall be collected from the sides and bottom of the still to collect the necessary amount of residue. EFO Sampling Technicians shall collect samples of the residue from the walls and bottom of the still utilizing a stainless steel scoop and spatula/paint scraper. RSO/Safe Shutdown personnel shall remove remaining residue from the still to complete the cleaning of the still.

As of August 3, 1994, approximately one to two liters of an unknown liquid was noted in the still. If a liquid phase is present at the time of sampling, one grab sample of the liquid shall be collected with a stainless steel ladle and considered a solvent. The sample shall be analyzed for the parameters listed in Section 2.1.

If sufficient volume of liquid (solvent) is not available in the Detrex Still to meet established volume requirements in Table 2.2, collect three 40 ml vials of liquid and the remaining material in two additional amber glass sample containers. Aliquot volumes shall be determined by the Analytical Customer Support (ACS) representative and analytical laboratory personnel based on the priorities of the requestor.

If sufficient mass of residue is not available in the Detrex Still to meet established mass requirements in Table 2.2, collect four 4-ounce amber glass containers of material. Aliquot masses shall be determined by the ACS representative and analytical laboratory personnel, based on the priorities of the requestor.

2.2.2 Condenser Unit and Structural Frame

The structural frame and condenser unit shall be dismantled and steam cleaned by RSO/Safe Shutdown personnel at the D&D Facility, Building 69. The excess decontamination solution for both items shall be collected in one white metal box (WMB). EFO Sampling Technicians shall collect one sample of the decontamination solution from the WMB with a glass COLIWASA. The sample shall be analyzed for the parameters listed in Section 1.2.

2.2.3 Concrete

The concrete floor beneath and surrounding the Detrex Still shall be scabbled by RSO/Safe Shutdown personnel. EFO Sampling Technicians shall collect one sample of the scabbled concrete with a scoop, which shall be analyzed for the parameters listed in Section 1.2.

2.2.4 Ancillary Piping

The Detrex Still ancillary piping is not scheduled to be steam cleaned. No sampling is scheduled.

## 2.3 ADDITIONAL ROUNDS OF SAMPLING

Additional rounds of sampling may be required due to unforeseen circumstances. If the need arises, additional samples may be collected and analyzed as outlined in this sample plan and associated health and safety plan after notification of the Project Manager, CRU3 Project Engineer, ACS, and Quality Assurance.

## 2.4 FIELD QUALITY ASSURANCE SAMPLES

One duplicate sample of the residue, decontamination solution, and scabbled concrete shall be collected and analyzed as field quality assurance samples. If there is not sufficient quantity of material, a duplicate shall be omitted.

If sufficient volume of liquid is not available to meet established volume requirements, collect three 40 ml vials of liquid and the remaining material in two additional amber glass sample containers. Aliquot volumes shall be determined by the Analytical Customer Support (ACS) representative and analytical laboratory personnel based on the priorities of the requestor.

If sufficient mass of solid is not available to meet established mass requirements, collect four 4-ounce amber glass containers of material. Aliquot masses shall be determined by the ACS representative and analytical laboratory personnel, based on the priorities of the requestor.

In addition to collecting duplicate samples, EFO Sampling Technicians shall prepare field blanks and trip blanks as necessary per the SCQ and CPID for each sampling event. Equipment rinsates shall not be collected as directed by the requestor and concurred by QA.

## TABLE 2.1

## SAMPLE IDENTIFIERS AND LOCATIONS

| SAMPLE LOCATION | EXTRACTION LOCATION | CUSTOMER ID | SAMPLE IDENTIFIER | SAMPLE MATRIX TYPE | SAMPLE MATRIX |
|---|---|---|---|---|---|
| Decontamination solution | WMB | 400000 | 044801-001 | DS | Decon Solution |
| Decontamination solution* | WMB | 400001 | 044801-001 | DS | Decon Solution |
| Field Blank | N/A | 400002 | 044801-001 | FB | DI water |
| Trip Blank | N/A | 400003 | 044801-001 | TB | DI water |
| Scabbled Concrete | floor | 400004 | 044801-002 | CT | concrete |
| Scabbled Concrete* | floor | 400005 | 044801-002 | CT | concrete |
| Field Blank | N/A | 400006 | 044801-002 | FB | DI water |
| Trip Blank | N/A | 400007 | 044901-002 | TB | DI water |
| Detrex Still Tank | east end of tank | 400008** | 044801-003 | MP | residue |
| Detrex Still Tank* | east end of tank | 400009** | 044801-003 | MP | residue |
| Field Blank | N/A | 400010 | 044801-003 | FB | DI water |
| Trip Blank | N/A | 400011 | 044801-003 | TB | DI water |

N/A - not applicable
WMB - White Metal Box

* Samples 400001, 400005, and 400009 are duplicates of 400000, 400004, and 400008, respectively.

** If distinct solid and liquid phases are present, use customer numbers 400008 and 400009 for the solid phase sample and duplicate and customer numbers 400012 and 400013 for the liquid sample and duplicate, respectively. The liquid samples from the still should be considered a solvent.

If additional samples are necessary, identify each sample with consecutive numbers up to and including 400024. If more numbers are required, contact the EPD Project Manager.

## 2.5 CHAIN OF CUSTODY SAMPLE INFORMATION

The analytical, Chain of Custody, and sample information relative to this sampling activity are contained in Table 2.2. The information presented was designed to meet the requirements of the current Site Wide Chain of Custody, the requestor, and the analytical laboratories at the time the document was development. Contact the EPD Project Manager prior to field implementation to confirm that the information is still valid.

header page for

TABLE 2.2
CHAIN OF CUSTODY SAMPLE INFORMATION





this last "header" will be for the sampling notes page

001009

TABLE 2.2

CHAIN OF CUSTODY SAMPLE INFORMATION

| SAMPLE TYPE | MEDIA (Matrix code) | ANALYSIS | COC CODES ANALYSIS, UNIT, PRESERVATIVE | CONTAINER TLC - teflon lined closure | NO. X VOL. | SAMPLE MASS | HOLDING TIMES (days) | PRESERVATIVE/ [%Wt by Volume] |
|---|---|---|---|---|---|---|---|---|
| 400000<br>400001<br>400002 | 400006<br>400010 | ASL B | | | | | | |
| Grab | water (M325) | Total RCRA Metals | 2402, U02, P11 | polyethylene | 1 x 1 L | N/A | 180/28Hg | $HNO_3$<2 [1 ml/1l] |
| | | Total Herbicides | 2493, U06, P01 | amber glass | 1 x 1 gal | N/A | 7 | Cool |
| | | Total Semi-VOAs | 2081, U02, P01 | amber glass | 1 x 1 gal | N/A | 7 | Cool |
| | | Total VOAs | 2300, U02, P01 & P09 | glass/TLC | 2 x 40 ml | N/A | 14 | Cool & HCL<2 |
| | | Total Uranium | 2001, U06, P11 | poly or glass | 1 x 1 L | N/A | 180 | $HNO_3$<2 |
| | | Total Thorium | 2002, U06, P11 | poly or glass | 1 x 1 L | N/A | 180 | $HNO_3$<2 |
| | | PCB | 2218-2222, U06, P01 | amber glass/TLC | 1 x 40 ml | N/A | 7 | Cool |
| | | Alpha/Beta | 2005, U18, P00 | poly or glass | 1 x 120 ml | N/A | 180 | None |
| 400003<br>400007<br>400011 | ASL B | | | | | | | |
| Pour | water (M325) | Total VOAs | 2300, U02, P01 & P09 | glass/TLC | 2 x 40 ml | N/A | 14 | Cool & HCL<2 |
| | | Alpha/Beta | 2005, U18, P00 | poly or glass | 1 x 120ml | N/A | 180 | None |

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TABLE 2.2

CHAIN OF CUSTODY SAMPLE INFORMATION

| SAMPLE TYPE | MEDIA (Matrix code) | ANALYSIS | COC CODES ANALYSIS, UNIT, PRESERVATIVE | CONTAINER TLC - teflon lined closure | NO. X VOL. | SAMPLE MASS | HOLDING TIMES (days) | PRESERVATIVE/ [%Wt by Volume] |
|---|---|---|---|---|---|---|---|---|
| 400004<br>400005 | ASL B | | | | | | | |
| Composite | concrete (M305) | Total Metals | 2401, U02, P01 | glass/TLC | N/A | 1 x 250g | 180/28Hg | Cool |
| | | Total Herbicides | 2487, U02, P01 | glass/TLC | N/A | 1 x 100g | 180 | Cool |
| | | Total Semi VOAs | 2471, U02, P01 | amber glass | N/A | 1 x 100g | 180 | Cool |
| | | Total VOAs | 2459, U04, P01 | glass/TLC | N/A | 3 x 100g | 180 | Cool |
| | | Total Uranium | 2442, U07, P00 | glass | N/A | 1 x 100g | 180 | None |
| | | Total Thorium | 2002, U07, P00 | glass | N/A | 1 x 100g | 180 | None |
| | | PCB | 2218-2222, U08, P01 | glass/TLC | N/A | 1 x 100g | 180 | Cool |
| | | Total Organic Halides (TOX) | 2048, U04, P01 | amber glass | N/A | 1 x 100g | 180 | Cool |
| | | Reactive Hydrogen Cyanide | 1063, U19, P01 | glass | N/A | 1 x 100g | 180 | Cool |
| | | Reactive Hydrogen Sulfide | 1063, U19, P01 | glass | N/A | 1 x 100g | 180 | Cool |
| | | PFLT pH[6] | pH if PFLT fails | glass/TLC | N/A | 1 x 100g | 28 | None |
| | | Gamma Spectral Analysis | 1063, U19, P00 | glass | N/A | 1 x 100g | 180 | None |
| | | Alpha/Beta | 2005, U19, P00 | glass | N/A | 1 x 50g | 180 | None |



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TABLE 2.2

CHAIN OF CUSTODY SAMPLE INFORMATION

| SAMPLE TYPE | MEDIA (Matrix code) | ANALYSIS | COC CODES ANALYSIS, UNIT, PRESERVATIVE | CONTAINER TLC - teflon lined closure | NO. X VOL. | SAMPLE MASS | HOLDING TIMES (days) | PRESERVATIVE/ [%Wt by Volume] |
|---|---|---|---|---|---|---|---|---|
| 400008<br>400009 | ASL B | | | | | | | |
| Composite | residue[4] (M316) | Total Metals | 2401, U02, P01 | glass/TLC | N/A | 1 x 250g | 180/28Hg | Cool |
| | | Total Herbicides | 2487, U02, P01 | glass/TLC | N/A | 1 x 100g | 180 | Cool |
| | | Total Semi VOAs | 2471, U02, P01 | amber glass | N/A | 1 x 100g | 180 | Cool |
| | | Total VOAs | 2459, U04, P01 | glass/TLC | N/A | 3 x 100g | 180 | Cool |
| | | Total Uranium | 2442, U07, P00 | glass | N/A | 1 x 100g | 180 | None |
| | | Total Thorium | 2002, U07, P00 | glass | N/A | 1 x 100g | 180 | None |
| | | PCB | 2218-2222, U08, P01 | glass/TLC | N/A | 1 x 100g | 180 | Cool |
| | | Alpha/Beta | 2005, U19, P00 | glass | N/A | 1 x 50g | 180 | None |

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TABLE 2.2

CHAIN OF CUSTODY SAMPLE INFORMATION

| SAMPLE TYPE | MEDIA (Matrix code) | ANALYSIS | COC CODES ANALYSIS, UNIT, PRESERVATIVE | CONTAINER TLC - teflon lined closure | NO. X VOL. | SAMPLE MASS | HOLDING TIMES (days) | PRESERVATIVE/ [%Wt by Volume] |
|---|---|---|---|---|---|---|---|---|
| 400012[3] 400013 | ASL B | | | | | | | |
| Grab | solvent[4] (M323) | Total RCRA Metals | 2402, U02, P01 | amber glass | 1 x 1 L | N/A | 180/28Hg | Cool[***] |
| | | Total Herbicides | 2493, U06, P01 | amber glass | 1 x 1 gal | N/A | 180 | Cool |
| | | Total Semi-VOAs | 2081, U02, P01 | amber glass | 1 x 1 gal | N/A | 180 | Cool |
| | | Total VOAs | 2300, U02, P01 | amber glass/TLC | 2 x 40 ml | N/A | 180 | Cool |
| | | Total Uranium | 2001, U06, P01 | amber glass | 1 x 1 L | N/A | 180 | Cool |
| | | Total Thorium | 2002, U06, P01 | amber glass | 1 x 1 L | N/A | 180 | Cool |
| | | PCB | 2218-2222, U06, P01 | amber glass/TLC | 1 x 40 ml | N/A | 180 | Cool |
| | | Flashpoint | 2434, U35, P00 | amber glass/TLC | 1 x 250ml | N/A | 28 | None |
| | | Alpha/Beta | 2005, U18, P00 | amber glass | 1 x 120ml | N/A | 180 | None |



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## TABLE 2.2

## CHAIN OF CUSTODY SAMPLE INFORMATION

**SAMPLING AND ANALYSIS NOTES:**

1) Provide the following information in the Chain of Custody (COC):

- ASL Levels need to be recorded in COC.
- Samples shall be field screened for real-time radiological activity levels before the cap is placed on the jar. The results shall be indicated on the chain of custody and container label.

*** If solvent samples are collected, these samples shall not be acidified due to the nature of the material.

- RCRA metals include: arsenic; barium; cadmium; chromium; lead; mercury; selenium; silver;
- Volatile organics include: acetone; benzene; carbon tetrachloride; chlorobenzene; chloroform; methyl ethyl ketone; 1,1,1-trichloroethane; vinyl chloride
- Semi-volatile organics include: o-cresol; m,p-cresol; total cresol; 1,4-dichlorobenzene; 1,2-dichloroethane; 1,1-dichloroethylene; 2,4-dinitrotoluene; 2,4-dinitrotoluene; hexachlorobenzene; hexachlorobutadiene; hexachloroethane; nitrobenzene; pentachlorophenol; pyridine; tetrachloroethylene; trichloroethylene; 2,4,5-trichlorophenol; 2,4,6-trichlorophenol
- Herbicide includes: 2,4-D

2) Refer to Appendix D for necessary chain of custody form(s) and an example of a completed chain of custody.

3) If a liquid phase is present in the still, collect a sample and consider it a solvent.

4) If sufficient volume of liquid (solvent) is not available in the Detrex Still to meet established volume requirements in Table 2.2, collect three 40 ml vials of liquid and the remaining material in two additional amber glass sample containers. Aliquot volumes shall be determined by the Analytical Customer Support (ACS) representative and analytical laboratory personnel based on the priorities of the requestor.

If sufficient mass of residue is not available in the Detrex Still to meet established mass requirements in Table 2.2, collect four 4-ounce amber glass containers of material. Aliquot masses shall be determined by the ACS representative and analytical laboratory personnel, based on the priorities of the requestor.

5) Samples must be analyzed at a Utah certified laboratory.

6) Determine pH if sample fails the PFLT.

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## 3.0 QA/QC REQUIREMENTS

EFO sampling events follow Quality Assurance/Quality Control (QA/QC) protocol established in the SCQ, Section 4 and Appendix K and EPD internal procedure EP-SMS-002, "Field Quality Control Samples."

The frequency and number of field QA samples collected are based on the applicable DQOs and the CPID. Requirements and justification for collection of field QA samples per sampling round shall be documented in Section 2.0 and Section 3.0, respectively, of this PSP. Applicable laboratory QC sample types and frequency requirements are provided in Appendix G of the SCQ.

### 3.1 PROJECT REQUIREMENTS FOR SELF-ASSESSMENTS, SURVEILLANCES

Self-assessment and independent assessments of work processes and operations shall be undertaken to assure quality of performance. Self-assessment shall be performed by the Environmental Division, shall encompass technical and procedure requirements, and may be conducted at any point in the project.

Independent assessment shall be performed by the FEMP QA organization by conducting surveillances. As a minimum, one surveillance shall be conducted, consisting of monitoring/observing on-going project activity and work areas to verify conformance to specified requirements. Surveillances shall be planned and documented in accordance with Section 12.3 of the SCQ.

### 3.2 FIELD QA SAMPLES

Three types of field QA samples shall be collected and analyzed: field blanks trip blanks, and duplicates.

One field blank shall be prepared at each day of sampling at each location of sampling in accordance with Section K.4.6 of the SCQ. The sample containers (Table 2.2) containing organic-free de-ionized water will remain open during sampling activities at each location. Sample numbers are listed in Table 2.1.

One trip blank shall be prepared each day of sampling in accordance with Section K.4.6 of the SCQ. The sample containers (Table 2.2) shall be prepared in a controlled environment and accompany the sample containers through the collection, shipping, and handling. Organic-free de-ionized water shall be utilized in the preparation of the trip blank.

Duplicate samples shall be collected as frequently as specified in Table 2.1 of this document. Sample parameters, container and preservative requirements, and holding times are summarized on Table 2.2. Sample numbers are listed in Table 2.1.

## 4.0 EQUIPMENT DECONTAMINATION

Equipment specified in this PSP, Appendix E, shall be decontaminated prior to use and/or transport to the field sample site to limit the introduction of contaminants from equipment to sampled media and protect worker safety and health. The decontamination of equipment shall be a Level III Decontamination as referenced in Section K.11 of the SCQ, Section 2.6 of the Sampling and Analysis Plan in the CPID, and as listed in Section 6.4.1 of the Environmental Monitoring Section Procedures Manual, Vol. 1, EP-SMS-003, "Equipment Decontamination."

## 5.0 REQUIRED EQUIPMENT

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In the development of this PSP, the EPD Engineer/Project Manager determined through a series of pre-project walkdowns and meetings the appropriate equipment to be utilized in the completion of a sampling effort. As a minimum, EFO Sampling Technicians will use sampling equipment fabricated from stainless steel as specified in the PSP. A required equipment list is included in Appendix E.

Deviations from the required specific equipment list are at the discretion of the EFO senior technician or specified project lead technician. Prior to the execution of deviations from the PSP, the EPD Project Manager shall be contacted and notified of the change. Once the EPD Project Manager has notified the project lead technician of QA approval (verbal or written) and the requestor's approval, the change may be implemented. Deviations from the sampling procedure shall be noted in the applicable project field logbook and on a Variance Request form. QA must receive the completed Variance Request form, which includes the signatures of the EPD Project Manager, requestor, and project manager, within one week of the granting of the verbal approval.

The use of equipment shall be as referenced by the SCQ, Appendix K, or by the appropriate SMS/Environmental Programs Development and Field Operations Group (EPDFOG) sample extraction procedure. In the event that sampling procedures do not exist to address the use of sampling equipment EFO will utilize, sampling methodologies developed as project specific and will be included in the PSP as Appendix F.

## 6.0 SAMPLE EXTRACTION/COLLECTION PROCEDURE

Solid sample collection shall be in accordance with Environmental Monitoring & Surveillance/Site Media Sampling Procedure EP-SMS-007, Solids Sampling, Section 6.2, "Solids Sampling with a Paint Scraper and Scoop." Liquid sample collection from the still and WMBs shall be in accordance with Environmental Monitoring & Surveillance/Site Media Sampling Procedure EP-SMS-009, Sediment/Sludge, Section 6.2 "Sediment/Sludge Sampling with a Stainless Steel Scoop and Auger," and Section 6.4, "Sediment/Sludge Sampling with a Glass COLIWASA," respectively. Prior to the removal of the box from the still, a stainless steel bowl or pail shall be placed beneath the opening to catch liquid that may be released. The immediate floor area should be covered with plastic and surrounded by a dike in the event of a spill.

An uncontrolled copy of the procedure is attached as Appendix F; obtain the current revision copy of this document prior to implementation of this PSP.

RSO/Safe Shutdown personnel shall remove the ancillary piping, the condenser unit, and the box on the east end of the still prior to sampling.

Deviations from the specified sampling procedures are at the discretion of the EFO senior technician or specified project lead technician. Prior to the execution of a deviation from the PSP, the EPD Project Manager shall be contacted and notified of the change. Once the EPD Project Manager has notified the project lead technician of Quality Assurance's (QA) approval (verbal or written) and the requestor's approval, the change may be implemented. Deviations from the required equipment list shall be noted in the applicable project field logbook and on a Variance Request form. QA must receive the completed Variance Request form, which includes the signatures of the EPD Project Manager, requestor, and project manager, within one week of the granting of the verbal approval.

## 7.0 HEALTH & SAFETY

EFO Sampling Technicians will conform to all precautionary surveys performed by the FERMCO employees representing site Safety, Industrial Hygiene, and Health Physics. Concurrence to all applicable safety permits (indicated by signature of the EFO Sampling Technicians assigned to the prospective project) is expected by EFO Sampling Technicians in the performance of their assigned duties.

The EFO Lead Sampling Technician will insure that all EFO Sampling Technicians performing sampling related to the project has read all applicable surveys that protect worker safety and health. EFO Sampling Technicians who do not sign the applicable health and safety survey forms will not participate in the execution of sampling activities related to the completion of assigned project responsibilities. A copy of all applicable safety permits/surveys issued for worker safety and health shall be posted at each sample location and at the completion of the project, the completed forms shall be submitted for incorporation into the PSHSP, Appendix B.

## 8.0 DISPOSITION OF INVESTIGATION-DERIVED WASTES (IDW)

During completion of sampling activities, EFO sampling teams may generate contact wastes and decontamination waste. Following completion of sampling, the EFO sampling team shall place all contact wastes into properly labeled bags and disposition in accordance with appropriate FEMP waste management policies. Following completion of sampling, the EFO sampling team shall decant all decontamination solution into a 55-gallon drum at the exclusion area.

Disposition of the investigation-derived wastes (IDW) will be completed according to Environmental Monitoring Procedure EP-SMS-013, "Disposition of Investigation-Derived Wastes" (Appendix G). The Detrex Still has been classified as a HWMU; therefore Sections 6.2.6 and 6.3.11 of this procedure are applicable.

# APPENDIX A

# DATA QUALITY OBJECTIVES

NOTE: This copy of the Data Quality Objectives is an uncontrolled document. Verify current revision is being used prior to implementation.

# Fernald Environmental Management Project

# Data Quality Objectives

*Title:* Sampling of Surfaces/Major Media in Plant Components

*Number:* MS-007

*Revision:* 1

*Effective Date:* 09/12/94

*Contact Name:* Mike Heinen

UNCONTROLLED COPY

*Approval:* _____ *Date:* 9/13/94
*DQO Coordinator*

| *Rev #* | 0 | 1 | | | |
|---|---|---|---|---|---|
| *Date* | 11/30/92 | 9/12/94 | | | |

**Data Quality Objective**
**Logic Flow Worksheet**

**Sampling of Surfaces/Major Media in Plant Components**

## 1 Problem Statement

Planning team consists of:

- Michael Heinen, CRU3 Environmental Engineering-lead, author
- Grace Ruesink, DQO Coordinator

The currently identified individual components of OU3, of which there are more than 230 are categorized into 11 categories, as defined in the OU3 workplan. While certain components are expected to be relatively free of contamination, the majority of OU3's components are known or suspected to contain radiological, hazardous and mixed contamination. Contaminants of interest at OU3 include, but are not limited to uranium, thorium, radium, lead, mercury, chromium, selenium, vanadium, volatile organic compounds, etc. This contamination is in a variety of forms and varies in degrees at the FEMP. The list of potential contaminants of concern for OU3 is provided by Appendix A of the OU3 Workplan. The potential for both near term and long term human and ecological exposure exists through a range of exposure scenarios and pathways. These include direct on site access and release of contaminants to off site areas through several potential release mechanisms. Potential human health and environmental risks will be evaluated through quantitative and qualitative analyses of exposure pathways. Pathways relevant to OU3 have been identified and characterized in the conceptual model discussed in Section 3.1 of the OU3 RI/FS Work Plan Addendum.

The intended uses of data gathered at OU3 include (1) evaluating the potential hazard to human health and the environment, (2) evaluating remedial actions and alternatives, (3) choosing and implementing preferred remedial alternatives, and (4) monitoring the effectiveness of the remedial activities.

New data is necessary to help answer the above problems. Although old data exists, its quality/usability/thoroughness may be questionable. The main reason for the sampling to take place is to enable us to make sound decisions in order to determine the best, most cost-effective cleanup of this site. It is imperative that the data collected for both radiological and chemical parameters be defensible and of sufficient quality to adequately characterize all major media.

## 2 Identify the Decision That Addresses the Problem

In order to determine whether or not the material is hazardous and/or radiological, process knowledge will be utilized to confirm the process function of the unit or area. If the material

cannot be fully characterized using process knowledge, samples will be taken and analyzed to confirm the identity and/or to determine if the material is a hazardous waste.

## 3 Identify Inputs that Affect the Decision

To ensure data sufficiency, analyses of samples will focus on the full Radiological list, and the established USEPA Target Compound List (TCL) for organics, which include 33 volatile organics, 64 semivolatile organics, and 28 pesticide/PCB's. The Target Analyte List (TAL) for inorganics which include 24 specific compounds will also be included. In addition, substances of potential concern, which are not included in these lists, will also be sampled and analyzed in a more directed sampling effort based on process knowledge of the area.

## 4 Narrow the Boundaries of the Study

Spatial boundary: the spatial boundaries are specified in the Part B Permit submitted to OEPA. Each unit has a specific boundary that was identified due to the material waste found or determined through process knowledge to be in the area.

Temporal boundaries will depend on the location of the unit. If the unit is located outside, then the collection of samples will be weather dependent.

## 5 Develop a Logic Statement

The general focus is to obtain conservative representative values of the levels and depth of contamination for the various contaminants found in each of the major media. To accomplish this, screening information using field instrumentation will be used to locate the area of highest radiological/chemical contamination within the process area. All unknown solids/liquids/sediments will also be sampled per SW-846, if screening action levels are exceeded in the area. With knowledge of the contamination levels in the area, the material can then be segregated by constituent concentration and an appropriate treatment-train (ie. Envirocare, onsite neutralization/chemical treatment, etc.) can be developed.

If treatment is not desired, or is not viable based on the type/level of contamination and/or contaminated material, then the material will be accumulated and disposed of.

If the material is contaminated or if off site facilities cannot handle a specific contaminant or a specific type of media, then on site disposal will be used.

If the material is not contaminated, then clean off site disposal facilities will be utilized in order

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to keep in mind the FERMCO Mission of "least cost" disposal.

If a material is not contaminated, or contaminated below an established level, then the material will be released without restriction for recycling, reuse, or conventional disposal. If a material is contaminated above a certain level, and treatment is a viable option, the material will be treated to bring the level of contamination below accepted levels. The material can then be reused, recycled, or disposed of conventionally.

If a material is treated, but fails to be cleaned to below accepted levels, the material must be disposed of either on site, or at specialized off site facilities.

Existing survey data may be supplemented as necessary with screening data to identify locations of high chemical/radiological contamination within each process area where samples will be taken. Major media will be sampled at this location within each of these process areas. Swipe samples may also be taken at these locations. Areas of suspected PCB contamination will be screened, with intrusion samples taken if PCB's are found above action levels. For soil areas, gamma ray measurement instrumentation will be used to screen the area, and intrusive samples will be taken at various locations, with a sample taken at the location of highest contamination, and the balance distributed uniformly.

The data being collected could be used by a number of other programs including OU5, waste management, environmental technology, and community outreach.

## 6 Establish Constraints of the Uncertainty of the Decision

A false positive error would mean that certain types of contaminants are found when they are actually not there, and/or that the levels of contamination found are determined to be higher than they actually are. Such an error would cause over-remediation, and unnecessary expenditures. Since all of the components of OU3 are to be removed, the impact of a false positive error would be minimal since only the schedule and budget would be affected. For false positive errors, if contamination levels are thought to be higher than they actually are, then certain technologies and/or disposal options may be dropped from consideration because of the capability of the treatment technology to treat these higher levels. False positive errors could also indicate that certain treatment/disposal options need to be needlessly retained because it is thought to be necessary to treat a contaminant which is present in the media. Only a moderate level of confidence of 45% in the data is, therefore, required.

A false negative error would mean that certain types of contaminates not found at a location are actually present, and/or levels are determined to be lower than they actually are. Such an error would result in an underestimation of contamination. This error has possible health and political consequences, as well as economic and social if the material were to leak out and contaminate nearby ecosystems. Less than 20 percent chance of a false negative error is allowable. If 20

percent of the analytical results do not confirm the suspected presence of the specific analytes, additional/alternate sampling and analyses should be considered.

## 7 Optimize a Design for Obtaining Quality Data

It is assumed that contamination will be fairly uniform within a process area with respect to contamination resultant from process activities, although levels will vary within a specified area. Types of contaminates will vary between process areas and components. Depth of contamination will probably also vary be it contaminant, media, or process environment.

Samples of all major media will be taken at the area of highest radiological/chemical contamination. There may, however, be separate locations for the radiological and inorganic and/or organic sampling. In addition, multiple samples may be taken from each location in order to satisfy the different types of data needs. Swipe samples will be collected throughout the component by process area and media type. All swipe samples in the component over a preestablished action level will be combined for a single laboratory analysis to identify the radionuclide mix that is present. Also, samples will be taken of unknown/uncharacterized solids/liquids/sediments, as well as collection points where preestablished Action levels have been exceeded.

For surface waters and sediments in basin, impoundments, etc., sampling locations will be distributed over the basin/impoundment, with an effort made to take one sediment sample downgradient of any significant influent path. In addition, when unknown/uncharacterized liquids/solids are found in tanks and other containers, as well as in collection points in pipes, ducts, sumps, etc., samples of the liquid/solid will be taken when preestablished action levels are exceeded.

In order to characterize the resultant debris created from scarification of concrete surfaces(i.e. scabbling, etc.), grab samples will be taken to get a representative concentration of contamination within the zone. This will involve taking a grab sample per SW-846 methods.

The data to be generated through the laboratory analyses will generally be done so with full QA checks. However, complete raw data package validation will not be necessary. Accordingly, it is proposed that the samples generally be submitted to data validation for ASL C analysis or higher. As a quality assurance check, it is proposed that 10% of all ASL C or higher data undergo complete data validation. Completeness will be assessed based on the percentage of useable data points from the total set of data points collected, analyzed, and available. Pursuant to the SCQ, completeness is expected to be at least 90%. If sufficient valid data points are not obtained to meet project objectives, the valid data obtained shall be used and additional sampling and analysis may be considered to meet project objectives.

Samples are collected along with the field QA/QC samples including a field blank, trip blank

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(for VOCs only), equipment rinseates, and a field duplicate, when appropriate. Specific QA samples and frequencies will be delineated in the appropriate project specific plan. For metals, organics, and full radiologic, these include calibration verification samples (ICV & CCV), matrix spikes, surrogate spikes, duplicates/matrix spike duplicates, method, trip, and field blanks, equipment rinseate samples, and laboratory control samples. Specific requirements will be specified in the Project Sampling Plan. Only certified sampling containers shall be used, eliminating the need for a container blank. Performance evaluation samples will be provided by the QC laboratory, as needed.

Field monitors or screening devices such as Photoionization Detectors (PIDs), X-ray Fluorescence (XRF) and Flame Ionization Detectors (FIDs) used to support process knowledge claims will use Analytical Support Level (ASL) A. For the majority of the sampling program though, ASL B, C, and/or D will be required, depending on the intended use of the data and the QA methods required to achieve the desired level of quality. The radiological samples will also be collected at ASL B, C and/or D.

## 8 Summary

OU3 is collecting these samples to determine areas of radiological, hazardous and mixed contamination. The intended uses of data gathered during these projects include (1) evaluating the potential hazard to human health and the environment, (2) evaluating remedial actions and alternatives, (3) choosing and implementing preferred remedial alternatives, and (4) monitoring the effectiveness of the remedial activities.

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# DQO SUMMARY FORM

**Revision: 1**
**Effective Date: 09/12/94**



**1.A. Task/Description:** **CRU #:** 3

Sampling of surfaces/major media in plant components.

**1.B. Project Phase:** (Put an X in the appropriate selection.)

RI ☐ FS ☐ RD ☐ RA ☐ R,A ☐ OTHER ☐ Specify:

1.C. DQO No.: MS-007 Rev. 1 DQO Reference No.: MS-007 Rev. 0

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**2. Media Characterization:** (Put an X in the appropriate selection.)

Air ☐ Biological ☐ Groundwater ☐ Sediment ☐ Soil ☐

Waste ☐ Wastewater ☐ Surface water ☐ Other (specify): Media which constitute the bulk of materials present in a component (i.e. steel, concrete, (masonry, wood, etc.)

---

**3. Data Use with Analytical Support Level (A-E):** (Put an X in the appropriate Analytical Support Level selection(s) beside each applicable Data Use.)

Site Characterization
A [X] B [X] C [X] D [X] E ☐

Risk Assessment
A [X] B [X] C [X] D [X] E ☐

Evaluation of Alternatives
A [X] B [X] C [X] D [X] E ☐

Engineering Design
A [X] B [X] C [X] D [X] E ☐

Monitoring during remediation activities
A ☐ B ☐ C ☐ D ☐ E ☐

Other (Explain) _____
A ☐ B ☐ C ☐ D ☐ E ☐

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**4.A. Drivers:** DOE Orders 5400.5, 5820.2A, 5480.11, 10CFR 20, 40, 61, and 71, 40 CFR 50, 61, 143, 173, 191, 257, 261-268, and 300, 40 CFR 261, Ohio Administrative Code (OAC) 3701 and 3745, RCRA and the CERCLA Consent Agreement.

**4.B. Objective:** Evaluate the magnitude and extent of the contamination of components in OU3, through the evaluation of the contamination of major media, resulting from site releases of hazardous and/or radiological substances.

**5. Site Information (Description):** OU3 consists of the former production area consisting of all man-made facilities and features (also referred to as components), including dirt piles. FEMP operations, including discharges or spills, have potentially contaminated various media within the various components on site. The media within these various components may serve as a contamination source to the environment, and pose unacceptable risks to human health or the environment.

# DQO SUMMARY FORM

**Revision: 1**
**Effective Date: 09/12/94**



DQO Number: MS-007 Rev. 1

**6.A. Data Types with appropriate Analytical Support Level Equipment Selection and SCQ Reference:** (Place an "X" to the right of the appropriate box or boxes selecting the type of analysis or analyses required. Then select the type of equipment to perform the analysis if appropriate. Please include a reference to the SCQ Section.)

| | | | | | |
|---|---|---|---|---|---|
| 1. pH | ☐ | 2. Uranium | X | 3. BTX | ☐ |
| Temperature | ☐ | Full Radiologic | X | TPH | X |
| Specific Conductance | ☐ | Metals | X | Oil/Grease | X |
| Dissolved Oxygen | ☐ | Cyanide | ☐ | | |
| | | Silica | ☐ | | |
| 4. Cations | ☐ | 5. VOA | X | 6. Other (specify) | |
| Anions | ☐ | ABN | X | TCL/TAL | |
| TOC | ☐ | Pesticides | ☐ | Reactivity | |
| TCLP | X | PCB | X | Ignitability | |
| CEC | ☐ | | | Herbicides | |
| COD | ☐ | | | | |

**6.B. Equipment Selection and SCQ Reference:**

| Equipment Selection | | Refer to SCQ Section |
|---|---|---|
| ASL A | XRF, PID, FID, etc. | SCQ Section: K |
| ASL B | Analytical Equipment | SCQ Section: G |
| ASL C | see level B | SCQ Section: |
| ASL D | see level B | SCQ Section: |
| ASL E | | SCQ Section: |

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**7.A. Sampling Methods:** (Put an X in the appropriate selection.)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Biased | X | Composite | ☐ | Environmental | ☐ | Grab | X | Grid | ☐ |
| Intrusive | X | Non-Intrusive | X | Phased | X | Source | X | | |

Other (specify): _____

# DQO SUMMARY FORM



DQO Number: MS-007 Rev. 1

7.B. Sample Work Plan Reference: (List the samples required. Reference the work plan or sampling plan guiding the sampling activity, as appropriate.)

Background samples: See Appendix D of the OU3 RI/FS workplan

7.C. Sample Collection Reference: (Please provide a specific reference to the SCQ Section and subsection guiding sampling collection procedures.)

Sample Collection Reference: Sections 5,6,7, and 8 of the SCQ, as well as Appendices I,J,and K and abstracts in the OU3 RI/FS work plan for new procedures

---

8. Quality Control Samples: (Place an "X" in the appropriate selection box.)

8.A. Field Quality Control Samples:

| | | | |
|---|---|---|---|
| Trip Blanks | ☐ | Container Blanks | ☐ |
| Field Blanks | ☐ | Duplicate Samples | ☐ |
| Equipment Rinseate Samples | ☐ | Split Samples | ☐ |
| Preservative Blanks | ☐ | Performance Evaluation Samples | ☐ |

Other (specify): The necessary field QA samples are dependent on the media to be sampled, the analyses to be performed, and the ASL level. Field QA samples will be taken in accordance with the prescribed methodology and ASL level.

8.B. Laboratory Quality Control Samples:

| | | | |
|---|---|---|---|
| Method Blank | ☐ | Matrix Duplicate/Replicate | ☐ |
| Matrix Spike | ☐ | Surrogate Spikes | ☐ |

Other (specify) The necessary laboratory QA samples are dependent on the media and analysis to be performed. All laboratory QA will be performed in accordance with the established ASL level.

9. Other: Please provide any other germane information that may impact the data quality or gathering of this particular objective, task or data use.

# DQO WW-008

Contact Sue Madaris

Group CRU3

DQO Approval Date 2/28/94

2/28/94

DQO Coordinator Date

**DATA QUALITY OBJECTIVE LOGIC FLOW**
**RCRA Closures - Decontamination Verification Sampling**

## 1. Problem Statement

Planning team consists of:

- Karen Wintz, CRU3 Environmental Engineering, Lead
- Ken Kolthoff, Manager CRU3 Environmental Engineering
- Mike Heinen, CRU3 Environmental Engineering
- Sue Madaris, CRU3 Planning/Data Validation

The Amended Consent Decree requires that Hazardous Waste Management Units (HWMUs) be identified and Closure Plan Information and Data Packages (CPID) submitted for OEPA describing activities that will be conducted to clean or to decontaminate components of the HWMU. Closure is governed by the following regulations: 40 CFR 264.114 and 265.114; and OAC 3745-55-14 and 66-14; and the Ohio EPA *Closure Plan Review Guidance (Interim Final, September 1993)*.

The specific problem to be addressed by this DQO is the verification sampling to be completed after decontamination of equipment and construction material (e.g., concrete pads, floors, tanks, etc.) has been completed. According to the Ohio EPA, "Closure Plan Review Guidance, Interim Final", the preferred method for verifying that hazardous waste residues have been removed to the maximum extent practicable is the evaluation of rinseate sample analysis. In the Ohio Closure Guidance Document, section 3.10, the surface that was decontaminated is to be immersed with water and a rinseate collected. This immersion technique may differ between surfaces, however, they are all designed to accomplish the purpose. Examples of the techniques used to immerse a surface include spray wands and/or floor scrubbers. Every effort is made to use no more water as is necessary to immerse the surface. The "rule of thumb" of ¼" of water over the surface area requiring immersion is used to estimate the volume of rinseate.

OEPA has published rinseate standards that are to be met in order for the HWMU to be considered decontaminated and allow for closure of that unit (see Step 2 below). The verification of soil decontamination within a HWMU will be covered in a different DQO.

A schedule has been submitted to OEPA for closure of FERMCO HWMUs. The resources, project engineering, control account management, and personnel for implementing these closures falls within the CRU3 Environmental Engineering Group.

## 2. Identification of a Decision that Addresses the Problem

The major decision that must be resolved (in this DQO) to allow for "clean" closure of an HWMU is:

Does the final rinseate samples meet the following OEPA's rinseate standards (See Attachment 1) for the contaminants of concern?

- Fifteen times the public drinking water maximum contaminant level (MCL) for hazardous constituents as promulgated in 40 CFR 141.11 and OAC 3745-81-11 for inorganics and 40 CFR 141.12 and OAC 3745-81-12 for organics;
- If a MCL is not available for a particular contaminant, then fifteen times the maximum contaminant level goal (MCLG) as promulgated in 40 CFR 141.50 shall be used as the clean standard. If the MCLG is zero, use fifteen times the contaminant's practical quantitation limit in ground water; or
- If the product of fifteen times the MCL or MCLG exceeds 1 mg/L or if neither an MCL or MCLG is available for a particular contaminant, 1 mg/L shall be used as the clean standard.

If the final rinseate samples do not meet the above listed criteria for the contaminants of concern, then further decontamination will be completed and additional rinseate samples collected or alternative closure methodologies will be evaluated. If the final rinseate samples meet the listed criteria, then the equipment/area will be considered decontaminated and no further action will be taken.

## 3. Identification of Inputs that Affect the Decision

The inputs (analytical sampling) needed to effect the decision will be based on the contaminants of concern for each HWMU. The rinseate samples will be analyzed for all contaminants of concern identified in the HWMU.

If the contaminant(s) of concern is metals (TCLP), then the analytical sampling will be one or all of the TCLP metal analytes (total concentration).

If the contaminant(s) of concern is organics, then the analytical sampling will be the total analysis of one or all of the TCLP list of volatile and/or semi-volatile organic analytes.

If the contaminant(s) of concern is a listed waste, then the analytical sampling will be specific to the contaminant of concern or may be expanded to include like contaminants.

If the contaminant(s) of concern is that the area is characteristic hazardous (i.e., pH < 2 or > 14, flammable), then the analytical sampling will be specific to the characteristic and will include testing such as flash point and pH.

If the contaminant(s) of concern also include radionuclides, then the analytical sampling will also include Total Uranium and Thorium and possibly Isotopic Uranium and/or Thorium.

Additional sampling may be done (e.g., grease and oil) to ensure compliance with NPDES permits prior to discharge of the rinseate waters in areas where the contaminants of concern were petroleum based.

The contaminant(s) of concern and the analytical sampling requirements for HWMUs currently being prepared for closure, are included in Attachment 2.

The action levels for the analyses are specified in Step 2: Identify the Decision.

Field and analytical methods do exist to provide the necessary data.

## 4. Specification of the Domain of the Decision

Spatial boundary: the spatial boundaries of all HWMUs are specified in both the Part A Permit and the CPIDs submitted to OEPA. Each HWMU has a specific boundary that was identified due to the presence of hazardous waste found or determined through process knowledge to be in the area.

All surface areas which contacted hazardous waste must be decontaminated and a rinseate verification sample collected; if the surface areas are not continuous, then multiple samples will be collected to verify decontamination of separate components. This area may be a single tank, multi-part tank, sump, equipment, paved area, concrete, or other areas within the HWMU. Soils associated with the HWMU would not be covered by this DQO.

Temporal boundaries will depend on the location of the HWMU. If the HWMU is located outside, then the collection of rinseate water for sampling will be weather dependent.

## 5. Development of Logic Statements

If the concentration of all of the contaminants of concern in the rinseate sample are below the OEPA rinseate standards (see Step 2), then the area being rinsed is considered fully decontaminated; otherwise the area will need to be re-decontaminated and additional rinseate samples collected or alternative closure methodologies evaluated and performed.

DOE has agreed to provide OEPA with radionuclide data as information only. OEPA considers only the "hazardous" contaminants in its evaluation for closure of the HWMU, therefore, no action levels for the radionuclides apply.

## 6. Establishment of Constraints on Uncertainty

False negative error would occur when the results of the rinseate sample were below the OEPA rinseate standards showing that the area had been decontaminated sufficiently for closure of the HWMU when in actuality the contaminant(s) of concern still exists greater than the standard would allow. The consequence of this type of error would be to clean close a HWMU when the hazard still exists. This error would pose possible health and ecological consequences as well as political and social consequences if the contaminants are detected in later sampling efforts.

False positive error would occur when the results of the rinseate sample were still above the OEPA rinseate standards showing that the area needed to be re-decontaminated and further rinseate samples collected prior to closure of the HWMU when in actuality the contaminant(s) of concern was no longer present. The consequence of this type of error would be to have to re-decontaminate the area and collect further rinseate samples or alternative closure methodology pursued. If false positive errors would exist in further sampling efforts, then this error may prevent the HWMU from being closed. The major consequence would be economic with political and social consequences being secondary.

The major concern for this DQO would be the false negative errors. These errors can be reduced by the analysis of duplicate samples from the same rinseate water as well as laboratory duplicate and matrix spike analyses. In addition, to prevent false negative errors, every effort is made to use the least amount of water necessary to immerse surfaces in water. Decontamination procedures are provided to and approved by the OEPA in the CPID. In addition, a registered independent professional engineer is required to oversee decontamination and sampling efforts and certify that the HWMU has been closed in accordance with the approved closure plan.

## 7. Development of a Cost-Effective Design for Obtaining Data

After a piece of equipment or pad has been decontaminated and rinsed, the verification rinseate water is collected and a representative sample obtained. A single sample is collected from the rinseate water along with a field duplicate which is required per the SCQ. A single sample is used because OEPA requires a point-to-point comparison and will not accept the mean of several samples. The samples are then sent to the laboratory to be analyzed for the contaminant(s) of concern for that specific HWMU.

The field and laboratory QA/QC samples to be analyzed with these samples are listed in Section 8 below and are designed to meet the performance criteria outlined in Appendix G of the SCQ.

For those samples where the contaminant of concern is metal and organic, the analysis would be the total analysis of the TCLP list of analytes. The TCLP extraction is not performed to allow for comparison to the OEPA rinseate standards.

## 8. Summary of the DQO Logic Flow

A single rinseate sample is collected after decontamination of either equipment, tanks, sumps, pads, concrete, etc within a HWMU. This sample is collected along with the field QA/QC samples including a field blank, trip blank (for VOAs only), and a field duplicate. Because only one sample is being collected, no equipment rinseate is required. Only certified sampling containers shall be used, eliminating the need for a container blank. Performance evaluation samples will be provided by the QC department.

The laboratory QA/QC shall include those QA/QC samples required by the SW-846 method employed and Appendix G performance specifications. For metals, organics, and total U and Th these include calibration verification samples (ICV & CCV), matrix spikes, duplicates/matrix spike duplicates, method blanks, and laboratory control samples. The isotopic radiological analyses shall analyze method blanks, laboratory control samples, and chemical tracers.

The analysis(es) requested is dependent on the contaminant(s) of concern within the HWMU. Examples of current HWMU's to be sampled and decontaminated for closure is attached. This attachment also lists the contaminant(s) of concern for each HWMU and the list of analytes to be sampled. For the chemical analyses, ASL B (SW-846 methods) is required. The radiological samples will also be collected at ASL B.

# ATTACHMENT I

[illegible]

| [illegible] | [illegible] | [illegible] CDC's | Analysis for Sampling | [illegible] | [illegible] |
|---|---|---|---|---|---|
| North/South Sediment Ponds | Ocean Area Waters | VOA's<br>Radiologicals<br>pH | pH<br>Dioxins/Furans<br>Radiologicals<br>Grease/Oil | NPDES Permit Parameters<br>Aluminum/Titanium | 3 |
| Plant 6 Pond | Soil | Metals<br>VOA's<br>Radiologicals | Metals<br>VOA's<br>Radiologicals | Lead<br>TCA | 3 |
| T-3/T-8 | Ocean Area Waters | VOA's—See Table 3 of Amendments to CPID 11/93 | VOA's<br>Radiologicals | Benzene<br>Carbon Tet<br>Tetrachloroethene<br>Barium<br>Chromium<br>Selenium | 3 |
| Underdrains HF Waste Pit 4 | Ocean Area Waters | Fluoride<br>pH | Fluoride<br>pH<br>Radiologicals | Fluoride | 3 |
| Dennis Still | Waste Materials | VOA's<br>Metals<br>PCB's | VOA's<br>Metals<br>Radiologicals<br>PCB's | TCA<br>TCE<br>Tetrachloroethene<br>Chromium | 3 |
| | Ocean Area Waters | VOA's<br>Metals | VOA's<br>Metals<br>Radiologicals | To be done | 3 |
| Nitric Acid Yard Car and Area | Soil | TCLP Metals<br>Metals<br>Radiologicals<br>pH | TCLP Metals<br>Metals<br>Radiologicals<br>pH | Chromium<br>Lead<br>Mercury<br>Cadmium<br>Barium | 3—contamination C D |
| HF Yard Car and Area | Concrete | pH<br>Fluoride<br>Radiologicals | pH<br>Fluoride<br>Radiologicals | | 3 |
| | Ocean Area Waters | pH<br>Fluoride | pH<br>Fluoride<br>Radiologicals | NPDES Permit Parameters | 3 |
| | Soil | pH | pH<br>Radiologicals | | 3 |
| Waste Oil Storage in Garage | Ocean Area Waters | VOA's | VOA's<br>Radiologicals | TCA | 3 |
| | Concrete | VOA's | VOA's<br>Radiologicals | | 3 |
| | Soil | VOA's | VOA's<br>Radiologicals | | 3 |
| Drum Storage Area South W-26 (Lab) | Soil | | 3 out of 16<br>Metals full HSL<br>The rest, Metals<br>and VOA's<br>Radiologicals | | 3 or C |
| Underdrains HF Residues/Assoc. Storage Areas NW of Plant 4 | Soil | pH<br>Fluoride | pH<br>Fluoride<br>Radiologicals | | 3 |
| | Ocean Area Waters | pH<br>Fluoride | pH<br>Fluoride<br>Radiologicals | | 3 |
| Drum Storage Area Near Loading Dock (Lab) | Soil | VOA's<br>Metals | VOA's<br>Metals<br>Radiologicals | | 3 |
| | Ocean Area Waters | VOA's<br>Metals | VOA's<br>Metals<br>Radiologicals | | 3 |
| Underdrains HF Residues/Assoc. Storage Area 3 of Cooling Towers | Soil | pH<br>Fluoride | pH<br>Fluoride<br>Radiologicals | | 3 |
| Waste Oil Recovery | Soil | VOA's<br>Radiologicals | VOA's<br>Radiologicals | | 3 |
| | Concrete | VOA's<br>Radiologicals | VOA's<br>Radiologicals | | 3 |
| | Ocean Area Waters | VOA's<br>Radiologicals | VOA's<br>Radiologicals | | 3 |
| Site Geometry Suite | Residue | Metals<br>Radiologicals<br>pH | Metals<br>Radiologicals<br>pH | | 3 |

**ATTACHMENT II**

the contaminants in lieu of establishing a maximum contaminant level.

(SS) "Treatment technique requirement" means a requirement of the state primary drinking water rules which specifies for a contaminant: a specific treatment technique or techniques known to the director which leads to a reduction in the level of such contaminant sufficient to comply with the requirements of this chapter.

(TT) "Trihalomethane" or "THM" means one of the family of organic compounds, named as derivatives of methane, wherein three of the four hydrogen atoms in methane are each substituted by a halogen atom in the molecular structure.

(UU) "Volatile organic chemicals" or "VOCs" are the chemicals identified in paragraph (C) of rule 3745-81-12 and paragraph (D) of rule 3745-81-24 of the Administrative Code.

(VV) "Waterborne disease outbreak" means the significant occurrence of acute or chronic infectious illness, epidemiologically associated with the ingestion of water from a public water system.

(WW) "Virus" means a virus which is infectious to humans by waterborne transmission.

(Effective December 27, 1978; August 24, 1981; May 22, 1989; December 31, 1990)

### 3745-81-02 Coverage.

This chapter shall apply to each public water system, unless the public water system meets all of the following conditions:

(A) Consists only of distribution and storage facilities (and does not have any collection and treatment facilities);

(B) Obtains all of its water from, but is not owned or operated by, a public water system to which this chapter applies;

(C) Does not sell water to any person; and

(D) Is not a carrier which conveys passengers in interstate commerce.

(Effective December 27, 1978)

### 3745-81-03 Siting requirements.

Before a person may enter into a financial commitment for or initiate construction of a new public water system or increase the capacity of an existing public water system, he shall notify the director and, to the extent practicable, avoid locating part or all of the new or expanded facility at a site which:

(A) Is subject to a significant risk from earthquakes, floods, fires or other disasters which could cause a breakdown of the public water system or a portion thereof; or

(B) Except for intake structures, is within the floodplain of a one-hundred-year flood or is lower than any recorded high tide where appropriate records exist.

(Effective December 27, 1978)

### 3745-81-11 Maximum contaminant levels for inorganic chemicals.

(A) The maximum contaminant level for nitrate is applicable to all public water systems. The levels for the other inorganic chemicals apply only to community water systems. Compliance with maximum contaminant levels for inorganic chemicals shall be calculated pursuant to rule 3745-81-23 of the Administrative Code.

(B) The following are the maximum contaminant levels for inorganic chemicals:

| Contaminant | Level milligrams per liter |
|---|---|
| Arsenic | 0.05 |
| Barium | 1. |
| Cadmium | 0.010 |
| Chromium | 0.05 |
| Fluoride* | 4.0 |
| Lead | 0.05 |
| Mercury | 0.002 |
| Nitrate (as N) | 10. |
| Selenium | 0.01 |
| Silver | 0.05 |

* See rule 3745-82-02 of the Administrative Code which establishes a secondary maximum contaminant level for fluoride.

(Effective March 1, 1988)

### 3745-81-12 Maximum contaminant levels for organic chemicals.

(A) Pesticides' maximum contaminant levels for organic pesticides in paragraph (A)(1) and (A)(2) of this rule apply to all community water systems. Compliance with the maximum contaminant levels in paragraph (A)(1) and (A)(2) of this rule is calculated pursuant to paragraph (A) of rule 3745-81-24 of the Administrative Code.

## ATTACHMENT II
## (Continued)

| | CAS Number | MCL milligrams per liter |
|---|---|---|
| (1) Chlorinated hydrocarbons: | | |
| Endrin (1,2,3,4,10,10-hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4-endo,endo-5,8-dimethano-naphthalene) | 72-20-8 | 0.0002 |
| Lindane (1,2,3,4,5,6-hexachlorocyclohexane, gamma isomer) | 58-89-9 | 0.004 |
| Methoxychlor (1,1,1-trichloro-2-bis-(p-methoxyphenyl)ethane) | 72-43-5 | 0.1 |
| Toxaphene (C10H10Cl8-technical chlorinated camphene, 67-69 per cent chlorine) | 8001-35-2 | 0.005 |
| (2) Chlorophenoxys: | | |
| 2,4-D (2,4-dichlorophenoxyacetic acid) | 94-75-7 | 0.1 |
| 2,4,5-TP Silvex (2,4,5-trichlorophenoxypropionic acid) | 93-72-1 | 0.1 |

(B) Total trihalomethanes: The maximum contaminant level for total trihalomethanes is 0.10 milligrams per liter and applies only to community water systems which serve a population of ten thousand or more individuals and which add a disinfectant (oxidant) to the water in any part of the drinking water treatment process. "Total trihalomethanes" means the sum of the concentrations of the four chemical listed below. Compliance with the maximum contaminant level for total trihalomethanes is calculated pursuant to paragraph (B) of rule 3745-81-24 of the Administrative Code.

| Trihalomethane | CAS Number |
|---|---|
| Bromodichloromethane | 75-27-4 |
| Dibromochloromethane | 124-48-1 |
| Tribromomethane (bromoform) | 75-25-2 |
| Trichloromethane (chloroform) | 67-66-3 |

(C) Volatile organic chemicals: The following maximum contaminant levels for VOCs apply to community water systems and non-transient non-community systems. Compliance with the maximum contaminant levels for these VOCs is calculated pursuant to paragraph (C) of rule 3745-81-24 of the Administrative Code.

| VOC | CAS Number | MCL milligrams per liter |
|---|---|---|
| Benzene | 71-43-2 | 0.005 |
| Vinyl chloride | 75-01-4 | 0.002 |
| Carbon tetrachloride | 56-23-5 | 0.005 |
| 1,2-Dichloroethane | 107-06-2 | 0.005 |
| Trichloroethylene | 79-01-6 | 0.005 |
| 1,1-Dichloroethylene | 75-35-4 | 0.007 |
| 1,1,1-Trichloroethane | 71-55-6 | 0.20 |
| para-Dichlorobenzene | 106-46-7 | 0.075 |

(Effective December 27, 1978; August 24, 1981; May 22, 1989)

### 3745-81-13 Maximum contaminant levels for turbidity.

For any public water system using, or in the process of installing, filtration as part of the treatment of a surface water source, the requirements in this rule apply until June 29, 1993. After June 29, 1993, the turbidity requirements of rule 3745-81-73 of the Administrative Code shall apply to each public water system which uses a surface water source, in whole or in part.

The maximum contaminant levels for turbidity are applicable to public water systems using surface water sources in whole or in part. The maximum contaminant levels for turbidity in drinking water, measured at a representative entry point or points to the distribution system, are:

(A) One turbidity unit (TU), as determined by a monthly average pursuant to rule 3745-81-22 of the Administrative Code, except that five or fewer turbidity units may be allowed if the supplier of water can demonstrate to the director that the higher turbidity does not do any of the following:

(1) Interfere with disinfection;

(2) Prevent maintenance of an effective disinfectant agent throughout the distribution system; or

(3) Interfere with microbiological or chemical determinations.

(B) Five turbidity units based on an average for two consecutive days pursuant to rule 3745-81-22 of the Administrative Code.

(Effective December 27, 1978; December 3, 1990)

# DQO SUMMARY FORM

Revision: 0
Effective Date: 02/28/94



**1.A. Title/Description:** [redacted] 3
RCRA Closures - Decontamination Verification Sampling

**1.B. Project Phase:** (Put an X in the appropriate selection.)

RI ☐ FS ☐ RD ☐ RA ☐ R/A ☐ OTHER ☒ Specify: RCRA Closures

1.C. DQO No.: WW-08 DQO Reference No.: N/A

---

2. Media Characterization: (Put an X in the appropriate selection.)

Air ☐ Biological ☐ Groundwater ☐ Sediment ☐ Soil ☐

Waste ☐ Wastewater ☐ Surface water ☒ Other (specify) Rinseate Water

---

**3. Data Use with Analytical Support Level (A-E):** (Put an X in the appropriate Analytical Support Level selection(s) beside each applicable Data Use.)

Site Characterization
A ☐ B ☐ C ☐ D ☐ E ☐

Risk Assessment
A ☐ B ☐ C ☐ D ☐ E ☐

Evaluation of Alternatives
A ☐ B ☐ C ☐ D ☐ E ☐

Engineering Design
A ☐ B ☐ C ☐ D ☐ E ☐

Monitoring during remediation activities
A ☐ B ☐ C ☐ D ☐ E ☐

Other (Explain) Verification of Decontamination
A ☐ B ☒ C ☐ D ☐ E ☐

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**4.A. Drivers:** Amended Consent Decree, 40 CFR 264.114 and 265.114; OAC 3745-55-14 and 66-14; and Ohio EPA *Closure Plan Review Guidance (Interim final, Sept. 1993)*.

**4.B. Objective:** To show through the use of rinseate sampling that a particular section of a Hazardous Waste Management Unit (HWMU) has been decontaminated to below Ohio EPA rinseate standards published in the *Closure Plan Review Guidance (Interim final, Sept. 1993)*

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**5. Site Information (Description):** Operable Unit 3 (OU3) consists of the former Fernald Production Area and production-associated facilities and equipment. It incorporates all above- and below-grade improvements, including, but not limited to, all structures, equipment, utilities, drums, tanks, solid waste, waste, product, thorium, effluent lines, K-65 transfer lines, wastewater treatment facilities, fire training facilities, scrap metal piles, feedstocks, and coal pile. The former Production Area occupies about 136 acres near the center of the FEMP site and contains many buildings, scrap metal and soil piles, containerized materials, storage pads, a parking lot, roads, railroad tracks, above- and underground tanks, utilities, and equipment. Several impoundments, ponds, and basins also are included. Each HWMU has a specific boundary that is specified in the part A permit with OEPA.

DQO SUMMARY FORM

Revision: 0
Effective Date: 02/28/94



DQO Number: MW-08

**6.A. Data Types with Appropriate Analytical Support Level Equipment Select and SCQ Reference:** (Place an "X" to the right of the appropriate box boxes selecting the type of analysis or analyses required. Then sel the type of equipment to perform the analysis if appropriate. Ple include a reference to the SCQ Section.)

| | | | | | |
|---|---|---|---|---|---|
| 1. pH | X | 2. Uranium | X | 3. BTX | |
| Temperature | | Full Radiologic | | TPH | |
| Specific Conductance | | Metals | X | Oil/Grease | |
| Dissolved Oxygen | | Cyanide | | | |
| | | Silica | | | |

| | | | | | |
|---|---|---|---|---|---|
| 4. Cations | | 5. VOA | X | 6. Other (specify) | |
| Anions | X | BNA | X | Total/Isotopic Thor | |
| TOC | | Pesticides | | Flash point | |
| TCLP * (see Sect.9) | X | PCB | X | | |
| CEC | | | | | |
| COD | | | | | |

**6.B. Equipment Selection and SCQ Reference:**

| Equipment Selection | | Refer to SCQ Section |
|---|---|---|
| ASL A | | SCQ Section: |
| ASL B | ICP, GFAAS, GC/MS, GC, Radiological | SCQ Section: Appendix G |
| ASL C | | SCQ Section: |
| ASL D | | SCQ Section: |
| ASL E | | SCQ Section: |

**7.A. Sampling Methods:** (Put an X in the appropriate selection.)

Biased ☐ Composite ☐ Environmental ☐ Grab ☒
Grid ☐

Intrusive ☐ Non-Intrusive ☐ Phased ☐ Source ☐
Other (specify): _____

DQO SUMMARY FORM



DQO Number: WW-08

7.B. Sample Work Plan Reference: (List the samples required. Reference the work plan or sampling plan guiding the sampling activity, as appropriate.)

Background samples: Each HWMU will have it's own Closure Plan Information and Data Pkg (CPID) outlining the sampling to be completed. Sampling plans will be written from this.

7.C. Sample Collection Reference: (Please provide a specific reference to the SCQ Section and subsection guiding sampling collection procedures.)

Sample Collection Reference: SCQ Appendix K, Section K.5.5 and EPA SW-846, Chapter 9.

---

8. Quality Assurance/Control Samples: (Place an "X" to the right of the appropriate selection(s).)

8.A. Field Quality Assurance Samples:

| | | | |
|---|---|---|---|
| Trip Blanks | X | Container Blanks | ☐ |
| Field Blanks | X | Duplicate Samples | X |
| Equipment Rinsate Samples | ☐ | Split Samples | ☐ |
| Preservative Blanks | ☐ | Performance Evaluation Samples | X |

Other (specify) _____

8.B. Laboratory Quality Control Samples:

| | | | |
|---|---|---|---|
| Method Blank | X | Matrix Duplicate/Replicate | X |
| Matrix Spike | X | Surrogate Spikes | X |

Other (specify) Calibration Verification Samples

9. Other: Please provide any other germane information that may impact the data quality or gathering of this particular objective, task or data use.

Each HWMU will be sampled for specific contaminants of concern which may include all or part of the analytes listed in section 6.A of this DQO summary form. (See attachment 1 of DQO logic flow for example HWMUs and their contaminants of concern.)

* (From section 6.A) The TCLP analyte lists will be analyzed, however, no TCLP extraction will be performed. The total concentrations of the analytes will be requested.

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# DQO WS-010

## Contact Michael Heinen

## Group CRU3

## DQO Approval Date 06/06/94

DQO Coordinator 6/6/94 Date

# DATA QUALITY OBJECTIVE LOGIC FLOW
## Characterization of Hold-up Material/Container Contents

## 1 Problem Statement

Planning team consists of:

- Karen Wintz, CRU3 Environmental Engineering-lead
- Ken Kolthoff, Manager CRU3 Environmental Engineering
- Mike Heinen, CRU3 Environmental Engineering-author
- Sue Madaris, CRU3 Planning/Data Validation
- Donald Luken, CRU3 Environmental Engineering

Unidentified hold-up/container contents materials are found throughout the site in containers and/or old process equipment. Their identity or hazards must be determined for proper handling and cleanup. Usually, these materials are found during routine maintenance inspections and their analyses must be completed in a timely manner in order to protect the environment. Characterization of waste is required under the Resource Conservation and Recovery Act (RCRA) as promulgated in 40 CFR 261 and Ohio Administrative Code 3745. RCRA must be followed as an Applicable, Relevant, or Appropriate Requirement (ARAR) to the CERCLA process at the FEMP.

The specific problem to be addressed by this DQO is the characterization of hold-up material/container contents to determine the identity and characteristics of the material or to confirm process knowledge claims regarding the presence of hazardous waste constituents in accordance with RCRA. If the concentration of any hazardous waste contaminants of concern (COCs) from a given unit exceeds the limits published in the above mentioned regulations, the material is considered hazardous waste.

Toxic Substances Control Act (TSCA) materials to be sampled include asbestos and Polychlorinated Biphenyls (PCBs). These substances must be handled according to the regulations which govern TSCA.

*NOTE: THIS DQO DOES <u>NOT</u> PERTAIN TO DRUM SAMPLING.*

## 2 Identification of a Decision that Addresses the Problem

The major decisions that must be resolved in this DQO are:

1. Is it a hazardous waste and what are the hazardous waste constituents of concern?

In order to determine whether or not the hold-up material/container contents is hazardous waste, process knowledge will be utilized to confirm the process function of the unit. If the material within the unit cannot be fully characterized using process knowledge, samples will be taken and analyzed to confirm the identity and/or to determine if the material is a hazardous waste.

## 3 Identification of Inputs that Affect the Decision

The inputs (analytical sampling) needed to effect the decision will be based on process knowledge. The hold-up material/container contents samples will be analyzed for all contaminants of concern identified based on process knowledge. The materials to be sampled can be divided into solids or liquids. Solid hold-up material consists of either product/raw material, debris, or an unknown, dry material (Attachment 1). Liquid hold-up materials are generally either product/raw material or a water-based mixture containing some product (Attachment 2). Liquids can be further broken down into an acid, organics (petroleum product, chlorinated solvents, etc.) or an unknown liquid. Any of these three liquid categories can contain a percentage of suspended particles or solids. Anticipated analyte lists based on this process knowledge are shown in Attachments 1 and 2. Also, analyte lists may be reduced or expanded based on process knowledge. A partial list of the inputs to these decisions are also described below.

If the contaminant(s) of concern is metals (TCLP), then the analyte(s) will be one or all of the TCLP metal analytes.

If the contaminant(s) of concern is organics (TCLP), then the analysis performed will be of one or all of the TCLP list of volatile and/or semi-volatile organic analytes and/or Polychlorinated Biphenyls (PCBs).

If the contaminant(s) of concern is a listed waste (contained in one of the following bulleted items), then the analysis will be specific to the contaminant of concern or may be expanded to include degredation products. If the material is a "P" listed waste, then it is acutely toxic; primarily unused chemical products. If the material is a "U" listed waste, then it consists of toxic unused chemical products. If the material is a "K" listed waste, then it is defined by a specific industrial process generated waste. If the material is an "F" listed waste, then it consists of specific chemicals used in a specific way, (i.e. degreasing).

If the contaminant(s) of concern is a hazardous characteristic (i.e., corrosivity, ignitable), then the analytical testing will be specific to the characteristic and will include testing such as pH and



000141

flash point.

If the contaminant(s) of concern also include radionuclides, then the analytical sampling will also include gross alpha/beta, Total Uranium and Thorium and possibly Isotopic Uranium and/or Thorium, and/or Radium.

If the material is a sludge, then a percent solids analysis will be performed in order to present the analytical results on a dry weight basis. In these cases, appropriate American Society of Testing Materials (ASTM) methods for the analyses of suspect materials will be used.

Additional sampling may be done (e.g., grease and oil) to ensure compliance with NPDES permits prior to discharge if the material is determined not to be a hazardous waste and where the contaminants of concern were petroleum based.

The action levels for the analyses are specified in Step 5: Development of Logic Statements.

Field and analytical methods do exist to provide the necessary data.

## 4 Specification of the Domain of the Decision

Spatial boundary: the spatial boundaries are specified in the Part B Permit submitted to OEPA. Each unit has a specific boundary that was identified due to the material waste found or determined through process knowledge to be in the area.

Temporal boundaries will depend on the location of the unit. If the unit is located outside, then the collection of hold-up material/container contents will be weather dependent.

## 5 Development of Logic Statements

1. Characteristic Hazardous Waste

If the concentration of the contaminants of concern in the hold-up material/container contents sample is above the TCLP limits as specified in 40 CFR 261.24, then the substance is characterized hazardous for toxicity.

As found in 40 CFR 261.21, if the substance is a liquid and contains less than 24% alcohol by volume, with a flash point of less than 60 degrees centigrade (140 degrees fahrenheit), then the substance is characterized hazardous for ignitability. If the substance is a solid, which under normal conditions can cause fire through friction, absorbtion of moisture or spontaneous chemical changes and burns so vigorously when ignited that it creates a hazard, then the solid

is also characterized hazardous for ignitability.

If an aqueous solution has a pH of less than or equal to 2 or greater than or equal to 12.5, the the substance is characterized hazardous for corrosivity.

If a substance has been classified as characteristically hazardous for reactivity, then representative sample of the waste has at least one of the properties discussed in 40 CFR 261.23

2. Listed Hazardous Wastes

The Administrator of the Environmental Protection Agency shall list a solid waste as a hazardou waste only upon determining that the solid waste meets one of the criteria discussed in 40 CFI 261.11 Subpart B. The listing of hazardous wastes is specified in 40 CFR 261.31 through 4 CFR 261.33. Listed wastes are classified into the four categories specified in Section 3.

## 6 Establish Constraints of Uncertainty

A false negative error would occur when analytical results do not confirm the presence o hazardous waste, rejecting process knowledge claims that there was hazardous waste; when i actuality, the material does exhibit hazardous waste characteristics or contain a listed hazardou waste. The consequence of this type of error would be to treat the material as non-hazardous rather than hazardous. This error has possible health and political consequences, as well a economic and social if the material were to leak out and contaminate nearby ecosystems.
Less than 20 percent chance of a false negative error is allowable. If 20 percent of the analytica results do not confirm the suspected presence of the specific analytes, additional sampling an analyses should be considered. Managing hazardous waste as non-hazardous waste can hav significant ramifications. Handling, storing, and disposing of hazardous waste as non-hazardou waste could cause the FEMP to loose any opportunities they may have to construct non hazardous waste disposal facilities on site.

False positive error would occur when the results of the hold-up material sample wer incorrectly identified as being a listed waste or exceeded the characteristics described in Sectio 5, showing that the material contained hazardous waste and needed to be treated as such. Th consequence of this type of error would be to have to go through the long and expensive proces of either treatment, storage and/or disposal of the material. The major consequence would b economic with political and social consequences being secondary. A 25 percent chance of false positive is allowable. If analytical results confirm the suspected presence of specifi analytes, the waste will be handled, stored, and treated/disposed as a hazardous material. Whil this increases the cost and duration of the clean-up effort, the environmental impact is negligibl and the FEMP would not jeopardize future opportunities to utilize non-hazardous dispos



000143

facilities.

The major concern for this DQO would be the false negative errors. These errors can be reduced by the analysis of duplicate samples from the same sampling effort as well as laboratory duplicate and matrix spike analyses.

## 7 Development of a Cost-Effective Design for Obtaining Data

In order to obtain a representative sample, a visual inspection of the container contents or hold-up material may be required. Examples of sampling techniques used for homogenous and heterogeneous liquids would be grab and COLIWASA samplers respectively. Multiple samples may be collected depending on the heterogeneity of the material per the guidelines of SW-846. The analyte lists may be reduced or expanded based on process knowledge.

In some instances, percent composition and/or acid-base normality will be performed in order to confirm if the identity of the hold-up material is consistant with process knowledge claims. In these cases, appropriate American Society of Testing Materials (ASTM) methods for the analyses of suspect materials will be utilized. The complete set of ASTM methods are located in the FEMP Library for easy reference. Specific SCQ and ASTM standards as applicable, will be identified in the project specific work plan.

Holding times for raw and product materials may differ from the listed SCQ holding times for environmental samples. Holding times and preservation techniques will be chosen to insure the integrity of the samples and appropriate cost benefits. Variations from the SCQ holding times will be described in the individual Project Specific Plan (PSP).

Results of these container contents analyses will be used for RCRA characterization of the hold-up material/container contents as per 40 CFR 261.24 Toxicity Characteristic. For solids, a totals analysis may be performed. If total analyses exceeds twenty times the TCLP limit, a TCLP extract will follow. For liquid samples, appropriate methods will be conducted in accordance with 40 CFR 261 Appendix II.

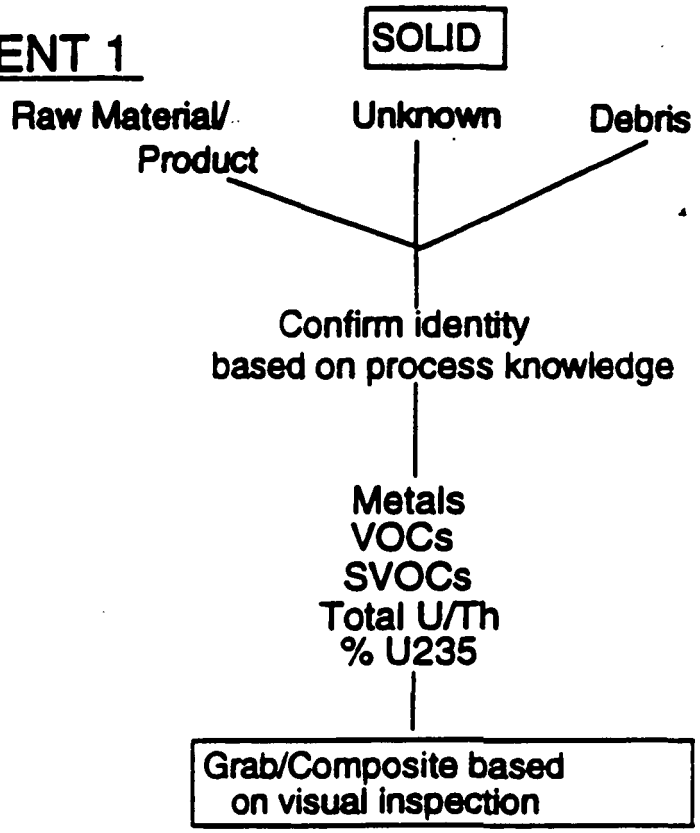
## 8 Summary of DQO Logic Flow

Samples are collected along with the field QA/QC samples including a field blank, trip blank (for VOCs only), equipment rinseates, and a field duplicate, when appropriate. Specific QC samples and frequencies will be deliniated in the appropriate project specific plan. For metals, organics, and total U and Th, these include calibration verification samples (ICV & CCV), matrix spikes, surrogate spikes, duplicates/matrix spike duplicates, method, trip, and field blanks, equipment rinseate samples, and laboratory control samples. Specific requirements will

be specified in the Project Sampling Plan. Only certified sampling containers shall be used, eliminating the need for a container blank. Performance evaluation samples will be provided by the QC laboratory, as needed.

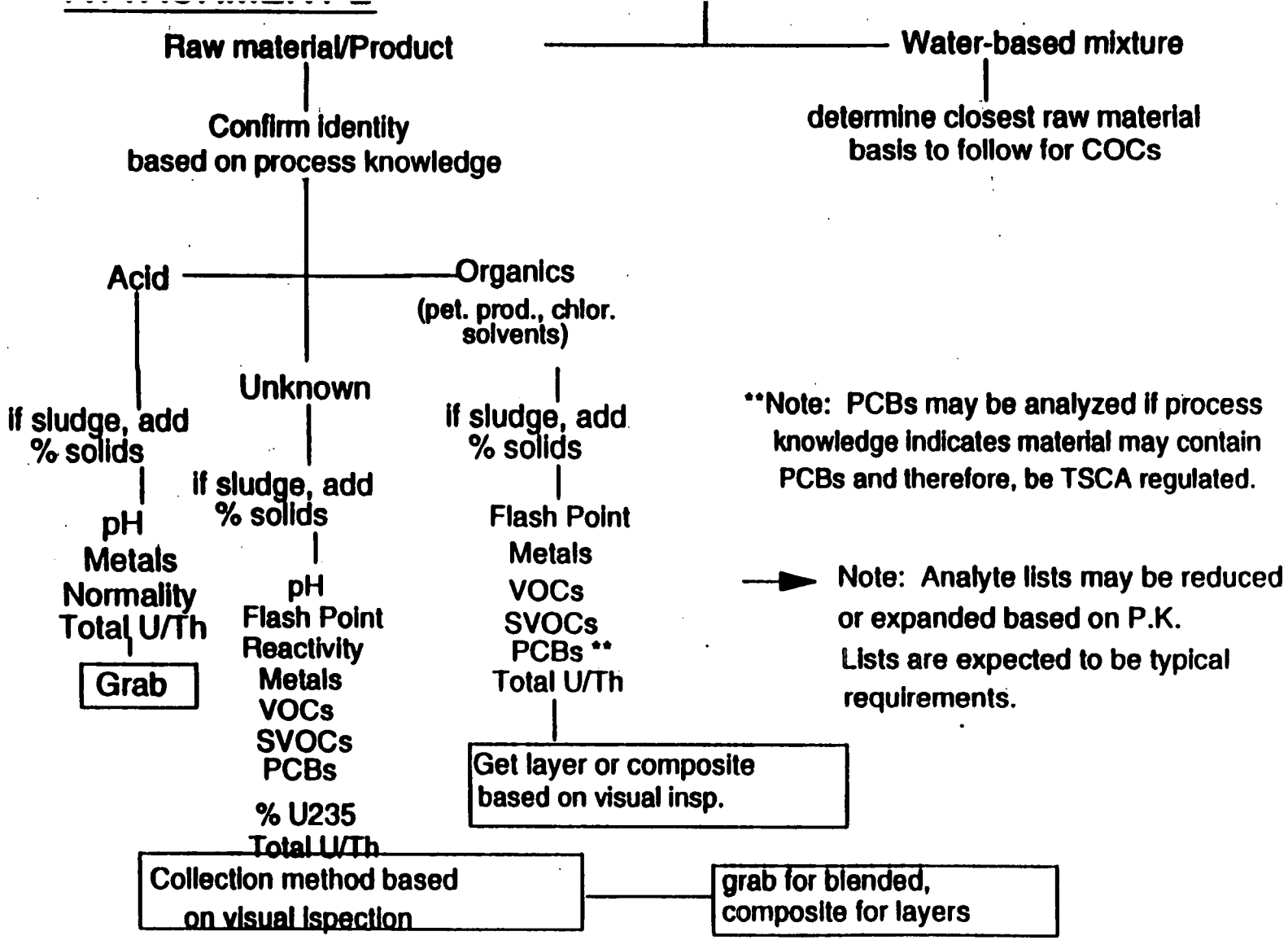
The analyses requested is dependent on process knowledge of the COCs as described in Attachment 1 and 2. Field monitors such as Photoionization Detectors (PIDs), X-ray Fluorescence (XRF) and Flame Ionization Detectors (FIDs) used to support process knowledge claims will use Analytical Support Level (ASL) A. For the majority of the sampling program though, ASL B (SW-846 methods, Vol. II) is required. The radiological samples will also be collected at ASL B.

# ATTACHMENT 1




NOTE: Analyte lists may be reduced or expanded based on P.K. Lists are expected to be the typical requirements.

Mixture of liquid/solids will be analyzed as liquids.


Raw material/Product
Water-based mixture
determine closest raw material basis to follow for COCs
Confirm identity based on process knowledge
Acid
Organics (pet. prod., chlor. solvents)
Unknown
if sludge, add % solids
pH
Metals
Normality
Total U/Th
Grab
if sludge, add % solids
pH
Flash Point
Reactivity
Metals
VOCs
SVOCs
PCBs
% U235
Total U/Th
if sludge, add % solids
Flash Point
Metals
VOCs
SVOCs
PCBs **
Total U/Th
Get layer or composite based on visual insp.
Collection method based on visual ispection
grab for blended, composite for layers
**Note: PCBs may be analyzed if process knowledge indicates material may contain PCBs and therefore, be TSCA regulated.
Note: Analyte lists may be reduced or expanded based on P.K. Lists are expected to be typical requirements.



000477

# DQO SUMMARY FORM

**Revision: 0**
**Effective Date: 06/06/94**



**1.A. Project Description:** **CRD # 3**
**Hold-up material/Container Contents Sampling**
**1.B. Project Phase:** (Put an X in the appropriate selection.)

RI ☐ FS ☐ RD ☒ RA ☐ R_A ☒ OTHER ☒ Specify: RCRA Closures

1.C. DQO No.: WS-010 DQO Reference No.: _____

2. Media Characterization: (Put an X in the appropriate selection.)

Air ☐ Biological ☐ Groundwater ☐ Sediment ☐ Soil ☐

Waste ☒ Wastewater ☐ Surface water ☐ Other (specify) X Raw material/ Product

**3. Data Use with Analytical Support Level (ASL)** (Put an X in the appropriate Analytical Support Level {ASL} selection(s) beside each applicable Data Use.)

Site Characterization
A ☐ B ☐ C ☐ D ☐ E ☐

Risk Assessment
A ☐ B ☐ C ☐ D ☐ E ☐

Evaluation of Alternatives
A ☐ B ☐ C ☐ D ☐ E ☐

Engineering Design
A ☐ B ☐ C ☐ D ☐ E ☐

Monitoring during remediation activities
A ☐ B ☐ C ☐ D ☐ E ☐

Other (Explain) Waste Characterization
A ☒ B ☒ C ☐ D ☐ E ☐

**4.A. Drivers:** **CERCLA Amended Consent Decree, Resource Conservation and Recovery Act, Ohio Administrative Code 3745.51; 40 CFR 261**
**4.B. Objective:** **To show, through the use of hold-up material/container contents sampling, the presence of hazardous waste.**

**5. Site Information/Description:** **Operable Unit 3 (OU3) consists of the former Fernald Production Area and production-associated facilities and equipment. It incorporates all above- and below-grade improvements, including, but not limited to, all structures, equipment, utilities, drums, tanks, solid waste, waste, product, thorium, effluent lines, K-65 transfer lines, wastewater treatment facilities, fire training facilities, scrap metal piles, feedstocks, and coal pile. The former Production Area occupies about 136 acres near the center of the FEMP site and contains many buildings, scrap metal and soil piles, containerized materials, storage pads, a parking lot, roads, railroad tracks, above- and underground tanks, utilities, and equipment. Several impoundments, ponds, and basins also are included.**

DQO SUMMARY FORM



DQO Number: WS-010

**6.A. Data Types with appropriate Analytical Support Level, Equipment Selection and SCQ References:** (Place an "X" to the right of the appropriate box or boxes selecting the type of analysis or analyses required. Then select the type of equipment to perform the analysis if appropriate. Please include a reference to the SCQ Section.)

| | | | | | |
|---|---|---|---|---|---|
| 1. pH | X | 2. Uranium | X | 3. BTX | |
| Temperature | | Full Radiologic | | TPH | |
| Specific Conductance | | Metals | X | Oil/Grease | X |
| Dissolved Oxygen | | Cyanide | X | | |
| | | Silica | | | |

| | | | | |
|---|---|---|---|---|
| 4. Cations | X | 5. VOA | X | 6. Other (specify) |
| Anions | X | ABN | X | Total/Isotopic Thorium. |
| TOC | | Pesticides | | % U235 |
| TCLP | X | PCB | X | Isotopic Radium |
| CEC | | | | Reactivity |
| COD | | | | Flashpoint |
| | | | | % Composition |

**6.B. Equipment Selection and SCQ Reference:**

| Equipment Selection | | Refer to SCQ Section |
|---|---|---|
| ASL A | XRF, PID, FID, etc. | SCQ Section: K |
| ASL B | Per SCQ and ASTM | SCQ Section: G and 5.3.3 |
| ASL C | | SCQ Section: |
| ASL D | | SCQ Section: |
| ASL E | | SCQ Section: |

**7.A. Sampling Methods:** (Put an X in the appropriate selection.)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Biased | X | Composite | X | Environmental | | Grab | X | Grid | |
| Intrusive | X | Non-Intrusive | X | Phased | | Source | | | |

Other (specify): _____



000149

# DQO SUMMARY FORM

**Revision: 0**
**Effective Date: 06/06/94**



DQO Number: WS-010

**7.B. Sample Work Plan References:** (List the samples required. Reference the work plan or sampling plan guiding the sampling activity, as appropriate.)

Background samples: Individual projects will have a PSP outlining sampling to be performed. Sampling plans will be written from the PSP.

**7.C. SCQ Sample Collection Reference:** (Please provide a specific reference to the SCQ Section and subsection guiding sampling collection procedures.)

Sample Collection Reference: SCQ Appendix K, Section K.5.5 and EPA SW-846, Chapter 9.

---

**8. Quality Assurance/Control Samples:** (Place an "X" to the right of the appropriate selection(s).)

**8.A. Field Quality Assurance Samples:**

| | | | |
|---|---|---|---|
| Trip Blanks | X | Container Blanks | |
| Field Blanks | X | Duplicate Samples | X |
| Equipment Rinsate Samples | X | Split Samples | |
| Preservative Blanks | | | |

Other (specify) _____

**8.B. Laboratory Quality Control Samples:**

| | | | |
|---|---|---|---|
| Method Blank | X | Matrix Duplicate/Replicate | X |
| Matrix Spike | X | Surrogate Spikes | X |
| Performance Evaluation Samples | X | Other (specify) | |

9. Other: Please provide any other germane information that may impact the data quality or gathering of this particular objective, task or data use.

Analyte lists may be reduced or expanded based on process knowledge. Lists are expected to be typical requirements.

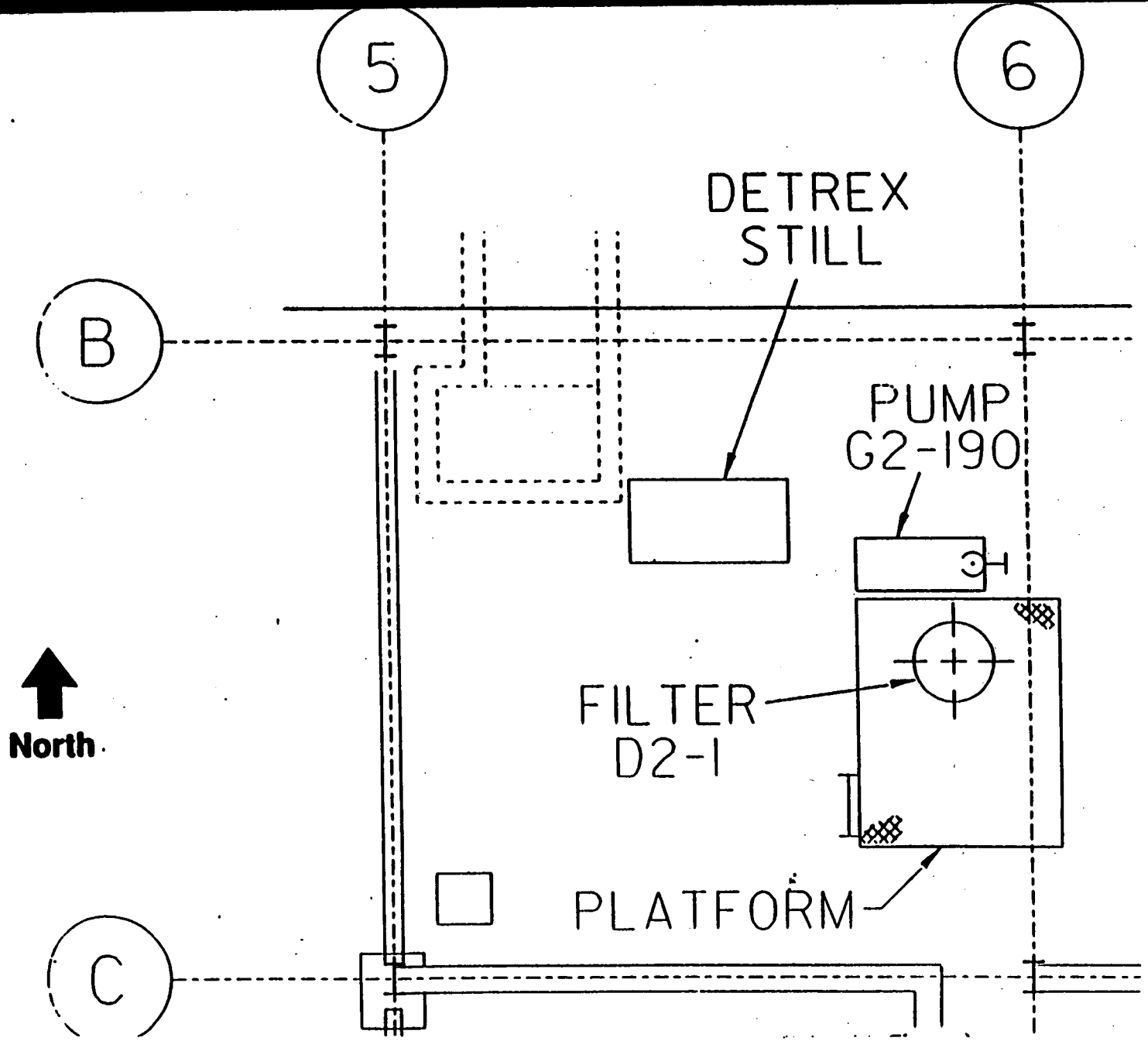
# APPENDIX B

# PROJECT SPECIFIC HEALTH AND SAFETY PLAN

NOTE: This copy of the PSHSP is an uncontrolled document. Verify current revision is being used prior to implementation.

# APPENDIX C

# SAMPLE LOCATION MAP



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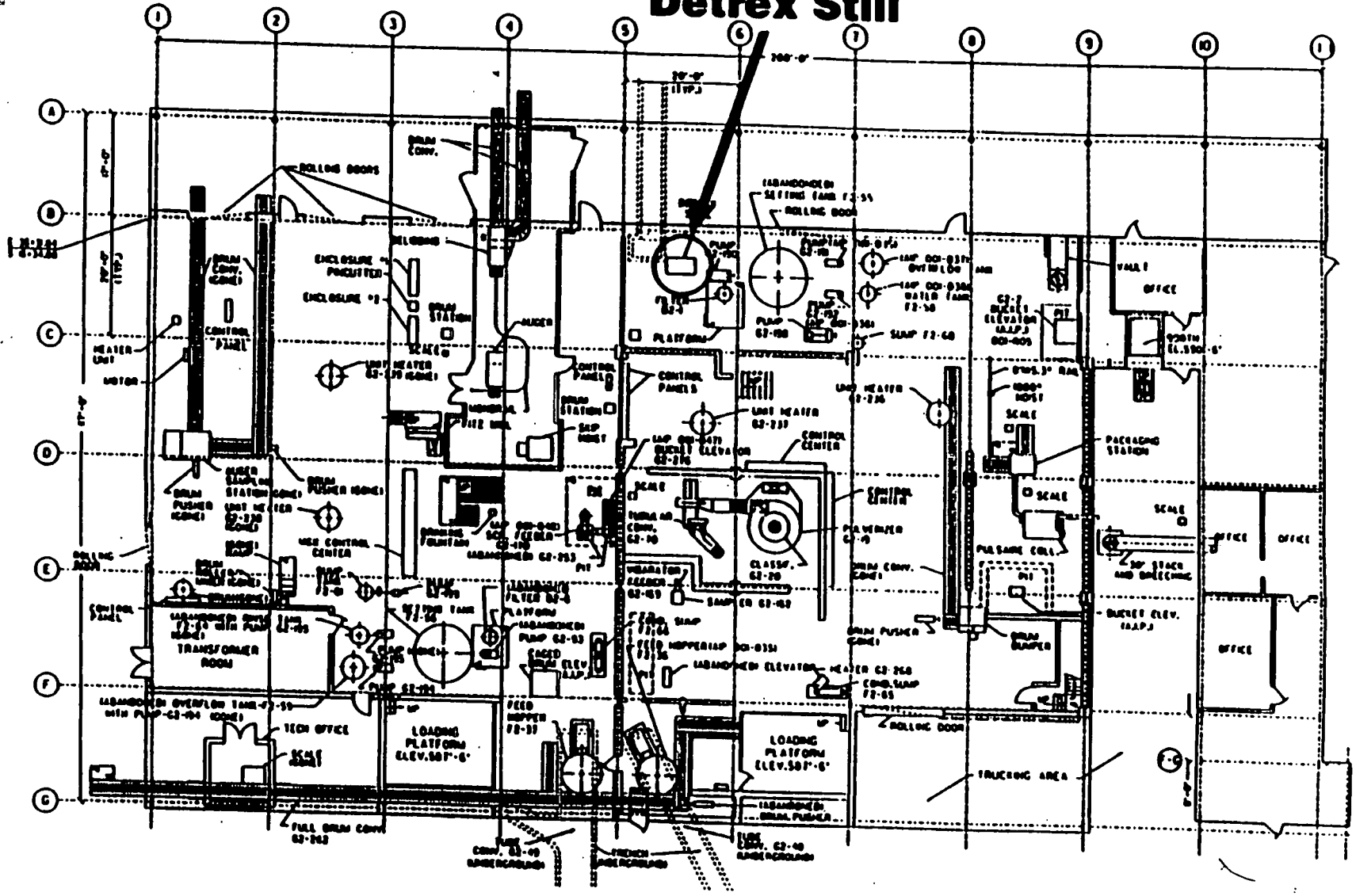
007211

# Detrex Still

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# APPENDIX D

# SITEWIDE ANALYSIS REQUEST/

# CUSTODY RECORD

FERNALD SITE

SITE SERVICES - ANALYTICAL

Form Number: _____ - _____ - _____

# SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD

Page _____ of _____

| | |
|---|---|
| PROJECT: | FOR SAMPLE RELATED PROBLEMS, CONTACT: |
| ☐ PLAN NO.: OR ☐ PROJECT NO.: | ORGANIZATION: |
| PROJECT MANAGER/ENGINEER: | NAME: PHONE: |
| SAMPLER: PHONE: | SAMPLER REMARKS: |
| CHARGE NUMBER: LOT MARKING CODE: | |
| SAMPLER SIGNATURE(S): | |
| SEND RESULTS TO: | |

CHECK FOR: ☐ S R LAB ☐ BIO LAB ☐ WTP LAB

SAMPLE SOURCE, DESCRIPTION/IDENTIFICATION, ANALYSIS REGIMEN

| ITEM NO. | SAMPLE NUMBER | CUSTOMER NUMBER | SAMPLE POINT | MATRIX CODE | COLLECTED DATE | COLLECTED TIME | CONTAINER/ VOLUME | COMPOSITE | GRAB | NO. OF CONTAINERS | ANALYTES CODE - (UNITS CODE) | | | | | | | | | | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | |

| ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME | ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

| NO. | DISTRIBUTION OF COPIES |
|---|---|
| 1 | LABORATORY |
| 2 | REQUESTER |
| 3 | SAMPLER |

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# APPENDIX E

# REQUIRED EQUIPMENT LIST

**EQUIPMENT**

**Decontamination Equipment**

_x_Stainless steel buckets
_x_Spill containment dikes
_x_Non-phosphate detergent
_x_Chemical resistant gloves (dedicated)
_x_Portable sprayers
_x_Deionized water
_x_Scrub brushes (dedicated)
_x_Laboratory tissues
_x_Plastic sheeting

**Personal Protective Equipment**

_x_Feet protection
  _x_Safety boots
  _x_Rubber boots
  __Latex booties
_x_Safety glasses
__Hearing protection
_x_Coveralls
  _x_Cotton
  __Tyvek
  _x_Saranex
__Safety harness/lanyard
_x_Barricades/caution ribbon
__Face shield
__Hard hat
_x_Breathing protection
  __Air purifying respirator
    _x_Full face w/cartridges
    __1/2 face w/cartridges
  __Supplied air respirator
  __Self-contained breathing apparatus
_x_Gloves
  __Surgical latex
  _x_Rubber/viton
  _x_Cotton and/or leather palm

**Sampling Equipment**

_x_Sample extraction equipment (see section 8.0)
_x_Tamper-proof tape
_x_Field logbook
_x_Pens/markers
_x_Stainless steel pans/bowls
_x_Sample containers
  _x_Glass/TLC
  _x_Other Amber glass/TLC
_x_Sample container labels
_x_Coolers w/"blue ice"
_x_Chain of custody/request for analysis form(s)

**Miscellaneous Equipment**

_x_Van(s) or truck(s)
_x_Plastic bags
_x_Weighing scales
__Razor knife
__Location flags
_x_HEPA vacuums
_x_Monitoring equipment
  _x_Organic Vapor Monitor
  _x_Photo ionization detector
  __Alpha scintillator
  __Geiger-Mueller detector
__Generator
_x_Extension cord(s)
_x_Used decon solution containers
__Distance measuring devices
_x_Dust containment enclosures
__Self excited fluorescent analyzer

# APPENDIX F

# SAMPLE EXTRACTION PROCEDURE

NOTE: This copy of the Sample Extraction Procedure is an uncontrolled document. Verify current revision is being used prior to implementation.

| | | |
|---|---|---|
| FERMCO Restoration Management Corporation | ENVIRONMENTAL DIVISION<br><br>ENVIRONMENTAL PROTECTION<br>ENVIRONMENTAL MONITORING & SURVEILLANCE<br>SITE MEDIA SAMPLING | PROC NO: EP-SMS-007<br>EFFECTIVE DATE: 06/10/94<br>REVISION NO: 0 |
| TITLE: Solids Sampling | | PAGE 1 OF 21<br>AUTHOR: M. Gibson |
| APPROVAL: Michael F. Ramirez<br>Michael F. Ramirez, Manager, Site Media Sampling | | DATE: 6/6/94 |

TABLE OF CONTENTS

UNCONTROLLED


| SECTION | TITLE | PAGE |
|---|---|---|
| | SUMMARY LOG | 2 |
| 1.0 | PURPOSE | 3 |
| 2.0 | SCOPE | 3 |
| 3.0 | REFERENCES | 3 |
| 4.0 | DEFINITIONS | 4 |
| 5.0 | RESPONSIBILITIES | 5 |
| 6.0 | PROCEDURE | 6 |
| 6.1 | General Requirements | 6 |
| 6.2 | Solids Sampling with a Paint Scraper and Scoop | 8 |
| 6.3 | Solids Sampling with a Hammer, Chisel, and Scoop | 10 |
| 6.4 | Solids Sampling with Power-Operated Rotary Drill | 12 |
| 6.5 | Solids Sampling with Power-Operated Rotary Hammer | 14 |
| 6.6 | Sample Preparation | 17 |
| 6.7 | Event Completion | 20 |
| 7.0 | RECORDS | 21 |
| 8.0 | ATTACHMENTS | 21 |

## SUMMARY LOG

| Revision Number | Description of Revision | Pages Affected |
|---|---|---|
| 0 | Initial Implementation | All |
| | | |
| | | |
| | | |
| | | |

## 1.0 PURPOSE

This procedure establishes field sampling methods for extraction and preparation of solid samples for Fernald Environmental Restoration Management Corporation (FERMCO), Environmental Safety & Health (ES&H) Division, Environmental Monitoring & Surveillance (EMS), Site Media Sampling (SMS).

## 2.0 SCOPE

This procedure applies to Site Media Sampling Technicians who are extracting samples of solids according to a Task-Specific Sampling and Analysis Plan (TSAP).

## 3.0 REFERENCES

### 3.1 Source Documents

3.1.1 Site-Wide CERCLA Quality Assurance Project Plan (SCQ)

3.1.2 Environmental Monitoring/Site Media Sampling Extraction Methodologies: 90-002, 90-003, 90-005, 91-010

### 3.2 Interface Documents

3.2.1 Project Work Package (PWP) which includes the TSAP.

3.2.2 EP-SMS-001, Field Logbook

3.2.3 EP-SMS-002, Field Quality Control Samples

3.2.4 EP-SMS-003, Equipment Decontamination

3.2.5 EP-SMS-004, Conduct and Coordination of Field Operations

3.2.6 SSOP-0018, Processing the Site-Wide Analysis Request/Custody Record for Sample Control

3.2.7 SSOP-0035, Accumulating Hazardous Waste in Satellite Accumulation Areas and Interim Containers

3.2.8 SSOP-0002, Completing the Material Evaluation Form

3.2.9 EP-SMS-006, Operation of Winco Power Generator IF using Power-Operated Rotary Drill OR Hammer

## 4.0 DEFINITIONS

4.1 **Composite Sample** - A mixing or compositing of solid material is designed to ensure homogeneity within a sample and to ensure that composite samples undergo the same degree of mixing. Samples being analyzed for unstable parameters, such as VOCs, cannot be composited. [SCQ]

4.2 **Derived Waste** - Wastes generated in the performance of Site Media Sampling activiti These wastes include, but a re not limited to:disposable extraction tools, disposable Personal Protective Equipment (PPE) such as Tyvek coveralls, gloves or booties; exces environmental media materials such as soil; decontamination solutions/rinsates.

4.3 **Deviation** - A departure from a specified requirement. Deviation can be a condition i which a characteristic of an item does not conform to prescribed limits, a required document is not available or is inadequate, a regulatory requirement was violated, or procedure does not yield desired results. [SCQ]

4.4 **Non-VOC Analysis** - Laboratory tests and evaluations of sampling media for substance other than Volatile Organic Compounds (VOC).

4.5 **Task-Specific Sampling and Analysis Plan (TSAP)** - The document which specifies sampling methods, locations, amounts, preservatives, quality control, and documentatio requirements for a specific sampling effort. The TSAP incorporates requirements of t Site-Wide CERCLA Quality Assurance Project Plan (SCQ).

4.6 **Project Walkdown** - A tour of the sampling site by all involved parties prior to the development of the Task-Specific Sampling and Analysis Plan for the purpose of answering questions and solving problems related to the proposed sampling effort.

4.7 **Project Work Package (PWP)** - Document packet used in the field, containing but not limited to, the following:

A. Task-Specific Health and Safety Plan (H&SP)
B. Task-Specific Sampling and Analysis Plan (TSAP)
C. Permits
D. Interface documents

4.8 **Sampling Event** - Collection of a sample from a single location for a specific project. [SCQ]

4.9 **Sample Location** - An area, approximately 12" by 12" square, designated as a location to obtain a sample of specified media. Each sample location may have a varying sample depths according to project requirements.

4.10 **Sample Point** - An area designated within a sample location where a media sample will be extracted.

4.11 **Sampling Round** - Constitutes collecting samples from one or more locations for a specific project during a specified time period for a similar purpose. [SCQ]

4.12 **Volatile Organic Compound (VOC) Analysis** - Laboratory test and evaluations of organic sampling media that participates in atmospheric photochemical reactions. These analyses include VOC, Semi-VOC, PCBs, and pesticides/herbicides.

4.13 **Work Zone** - An area of limited access established at a sampling site with barriers, signs, tape, and permits to control entry by non-authorized personnel.

## 5.0 RESPONSIBILITIES

### 5.1 Lead Technician

5.1.1 Ensures required equipment is present at work zone.

5.1.2 Oversees sampling collection activities.

5.1.3 Ensures documentation is completed.

### 5.2 Site Media Sampling (SMS) Technician

5.2.1 Extracts media samples and QC samples.

5.2.2 Completes appropriate field documents.

5.2.3 Delivers samples to FEMP Sample Receiving Laboratory.

5.2.4 Decontaminates sampling equipment.

## 6.0 PROCEDURE

### 6.1 General Requirements

**Lead Technician**

6.1.1 Verify work zone is prepared according to EP-SMS-004, Conduct and Coordination of Field Operations.

6.1.2 Verify required equipment is present at work zone:

A. Extraction equipment according to equipment list in PWP.

B. Environmental media sample containers according to TSAP.

C. Personal protection equipment (PPE) according to H&SP.

D. Field Logbook according to EP-SMS-001, Field Logbook.

E. QC Sample containers according to EP-SMS-002, Field Quality Control Samples.

F. Decontamination equipment according to EP-SMS-003, Equipment Decontamination.

G. Waste containers according to SSOP-0035, Accumulating Hazardous Waste in Satellite Accumulation Areas and Interim Containers..

6.1.3 Attend project walkdown of work zone according to EP-SMS-004.

6.1.4 Visually inspect the sampling locations with the SMS Technician(s) who will be performing the sample extractions.

**6.1.5 Precautions**

**SMS Technician**

A. Failure to wear protective gloves **AND** glasses may result in exposure to hazardous or radioactive materials.

B. Failure to use clean protective gloves **AND** clean decontaminated sampling equipment may result in sample cross-contamination.

C. Failure to exercise care while walking on plastic sheeting may increase the possibility of injury from a fall.

> **NOTE**
>
> Additional PPE, safety requirements, and precautions are identified in the PWP.

D. Failure to fill sample containers completely with soil for VOC analysis will allow VOCs to escape from the sample.

E. Failure to follow sample preservation requirements may cause sample degradation and invalid lab results.

6.1.6 Determine methodology and sampling tool specified by the TSAP:

A. **IF** Paint Scraper and Scoop are required, **THEN** go to 6.2.

B. **IF** Stainless Steel-faced Hammer, Chisel, and Scoop are required, **THEN** go to Section 6.3.

B. **IF** Power-Operated Rotary Drill and Wood Bit is required, **THEN** go to 6.4.

C. **IF** Power-Operated Rotary Hammer and Coring Bit is required, **THEN** go to 6.5.

## 6.2 Solids Sampling with a Paint Scraper and Stainless Steel Scoop

**SMS Technician**

6.2.1 Consult the PWP for additional personal protective equipment, safety requirements, specific sampling procedure, and sample container requirements.

> **CAUTION**
>
> Failure to use clean gloves **AND** clean decontaminated sampling equipment may result in sample cross-contamination.

6.2.2 Decontaminate sampling equipment according to EP-SMS-003 before collecting each sample.

6.2.3 Collect solid sample as follows:

**WARNING**

Failure to wear protective gloves **AND** glasses may result in exposure to hazardous or radioactive materials.

A. Don PPE, including a respirator which has been fitted with radionuclide filter cartridges if required by H&SP.

B. Put on two sets of clean disposable latex gloves.

**CAUTION**

Failure to use clean plastic sheeting may result in sample cross-contamination **AND** difficult clean-up of sampling location.

C. Place clean plastic sheet adjacent to the sampling location such that extracted sampl media will fall onto the plastic sheet.

**WARNING**

Failure to exercise care when walking on plastic sheeting may result in injury from a fall.

D. Using a decontaminated paint scraper remove portions of the media to be sampled.

E. Using a decontaminated stainless steel scoop, collect medias from non-contaminated areas of plastic sheeting.

F. Place into the sample container specified in TSAP.

G. Go to Step 6.6. AND return to this Step.

H. Place any remaining media material in a plastic bag until all sample points have been extracted.

I. Repeat Steps 6.2.3.D through 6.2.3.H UNTIL all required samples are extracted.

6.2.4 **WHEN** no additional samples are requested, **THEN** go to Section 6.6.

## 6.3 Solids Sampling with a Hammer, Chisel, and Scoop

**SMS Technician**

6.3.1 Consult the PWP for additional personal protective equipment, safety requirements, specific sampling procedure, and sample container requirements.

> **CAUTION**
>
> Failure to use clean gloves AND clean decontaminated sampling equipment may result in sample cross-contamination.

6.3.2 Decontaminate sampling equipment according to EP-SMS-003 before collecting each sample.

6.3.3 Collect solid sample as follows:

> **WARNING**
>
> Failure to wear protective gloves AND glasses may result in exposure to hazardous or radioactive materials.

A. Don PPE, including a respirator which has been fitted with radionuclide filter cartridges, if required by H&SP.

B. Put on two sets of clean disposable latex gloves.

**CAUTION**

Failure to use clean plastic sheeting may result in sample cross-contamination **AND** difficult clean-up of sampling location.

C. Place clean plastic sheet (Herculite® or equivalent) adjacent to the sampling locati such that extracted sample media will fall onto the plastic sheet.

**WARNING**

Failure to exercise care when walking on plastic sheeting may result in injury from a fall.

D. Using a decontaminated hammer and chisel remove portions of the media to be sampled.

E. Using a decontaminated stainless steel scoop, collect sample media from non-contaminated areas of plastic sheeting, AND place into a stainless-steel pan.

F. When sufficient sample volume has been accumulated to meet requirements of TSAP, THEN thoroughly mix media with scoop.

G. Using the stainless steel scoop, transfer media to sample container specified in TSA

H. Go to Step 6.6. **AND** return to this Step.

I. Place any remaining media material in a plastic bag until all sample points have be extracted.

J. Repeat Steps 6.3.3.D through 6.3.3.I UNTIL all required samples are extracted.

6.3.4 **WHEN** no additional samples are requested, **THEN** go to Section 6.6.

## 6.4 Solids Sampling with a Power-Operated Rotary Drill and Bit

**SMS Technician**

6.4.1 Consult the PWP for additional personal protective equipment, safety requirements, specific sampling procedure, and sample container requirements.

> **CAUTION**
>
> Failure to use clean gloves **AND** clean decontaminated sampling equipment may result in sample cross-contamination.

6.4.2 Decontaminate sampling equipment according to EP-SMS-003 before collecting each sample.

> **NOTE**
>
> Existing power supply must be grounded, at least 15 amps, with fuse or circuit breaker.

6.4.3 Connect rotary drill to existing power supply **OR** to Power Generator according to EP-SMS-006, Operation of Winco Model HP4500H Power Generator.

6.4.4 **IF** specified in PWP, connect Nilfisk Vacuum to existing power supply **OR** to Power Generator according to EP-SMS-006.

A. Attach hose of Nilfisk vacuum unit to air outlet of dust containment unit.

B. Push ON switch on Nilfisk vacuum.

6.4.5 Collect solid sample as follows:

**WARNING**

Failure to wear protective gloves **AND** glasses may result in exposure to hazardous or radioactive materials.

A. Don PPE, including a respirator which has been fitted with radionuclide filter cartridges, if required by H&SP.

B. Put on two sets of clean disposable latex gloves **AND** a set of clean cotton or leather palm work gloves.

**CAUTION**

Failure to use clean plastic sheeting may result in sample cross-contamination **AND** difficult clean-up of sampling location.

C. Place clean plastic sheet (Herculite® or equivalent) adjacent to the sampling location.

D. **IF** item to be sampled is movable without mechanical aid, **THEN** move the item to be sampled onto plastic sheeting.

**WARNING**

Failure to exercise care when walking on plastic sheeting may result in injury from a fall.

E. Using rotary drill with a decontaminated bit, advance the wood bit into the item to be sampled **UNTIL** sufficient amount of media is removed for sample requirements.

F. **IF** drill advancement is halted before a sufficient amount of media is removed, **THEN** move the wood bit to a sampling point adjacent to the original hole and continue advancing the wood bit.

G. Using a stainless steel scoop, collect sample media from non-contaminated areas of plastic sheeting.

H. Go to Step 6.6 **AND** return to this Step.

I. Place any remaining media material in a plastic bag until all sample points have been extracted.

J. Repeat Steps 6.4.5.E through 6.4.5.I UNTIL all required samples are extracted.

6.4.6 **WHEN** no additional samples are requested, **THEN** do this:

A. Disassemble power-operated drill and bit.

B. Go to Section 6.6.

**6.5 <u>Solids Sampling with a Power-Operated Rotary Hammer and Coring Bit</u>**

**SMS Technician**

6.5.1 Consult the PWP for additional personal protective equipment, safety requirements, specific sampling procedure, and sample container requirements.

> **<u>CAUTION</u>**
>
> Failure to use clean gloves **AND** clean decontaminated sampling equipment may result in sample cross-contamination.

6.5.2 Decontaminate sampling equipment according to EP-SMS-003 before collecting each sample.

**NOTE**

Existing power supply must be grounded, at least 15 amps, with fuse or circuit breaker.

6.5.3 Connect rotary drill to existing power supply **OR** to Power Generator according to EP-SMS-006, Operation of Winco Model HP4500H Power Generator.

6.5.4 **IF** specified in PWP, connect Nilfisk Vacuum to existing power supply **OR** to Power Generator according to EP-SMS-006.

A. Attach hose of Nilfisk vacuum unit to air outlet of dust containment unit.

B. Push ON switch on Nilfisk vacuum.

6.5.5 Collect solid sample as follows:

**WARNING**

Failure to wear protective gloves **AND** glasses may result in exposure to hazardous or radioactive materials.

A. Don PPE, including a respirator which has been fitted with radionuclide filter cartridges, if required by H&SP.

B. Put on two sets of clean disposable latex gloves **AND** a set of clean cotton or leathe palm work gloves.

**CAUTION**

Failure to use clean plastic sheeting may result in sample cross-contamination **AND** difficult clean-up of sampling location.

C. Place clean plastic sheet (Herculite® or equivalent) adjacent to the sampling location.

D. **IF** item to be sampled is movable without mechanical aid, **THEN** move the item to be sampled onto plastic sheeting.

**WARNING**

Failure to exercise care when walking on plastic sheeting may result in injury from a fall.

E. Using rotary hammer with a decontaminated coring bit, advance the coring bit into the item to be sampled to a depth of 1/8".

F. After reaching 1/8" depth, remove the center guide pin and continue advancing the coring bit.

G. Stopping periodically to remove the core, continue advancing the bit **UNTIL** sufficient weight of media is removed for sample requirements.

H. **IF** rotary hammer advancement is halted before a sufficient amount of media is removed, **THEN** move the coring bit to a sampling point adjacent to the original hole and continue advancing the coring bit.

I. Using a stainless steel scoop, collect sample media from non-contaminated areas of plastic sheeting, AND place into the sample container specified in TSAP.

J. Go to Step 6.6 **AND** return to this Step.

K. Place any remaining media material in a plastic bag until all sample points have b extracted.

L. Repeat Steps 6.5.6.E through 6.5.6.K UNTIL all required samples are extracted.

6.5.6 **WHEN** no additional samples are requested, **THEN** do this:

A. Disassemble power-operated rotary hammer and coring bit.

B. Go to Section 6.6.

**6.6 Sample Preparation**

**SMS Technician**

6.6.1 Consult TSAP for sample requirements.

A. **IF** sample required for VOC analysis, **THEN** go to Step 6.6.2.

B. **IF** sample required for non-VOC analysis, **THEN** go to Step 6.6.4.

C. **IF** composited sample required, **THEN** go to Step 6.6.5.

6.6.2 **IF** sample required for VOC analysis, **THEN** do this:

> **CAUTION**
>
> Failure to place solids for VOC analysis in sample containers quickly, without unnecessary handling of sample media, may cause VOCs to escape from the solids.

A. Remove cap from sample containers specified in TSAP.

B. Using decontaminated stainless steel scoop, spoon, or trowel extract portions of media from center, intact, undisturbed portions of the extracted sample.

C. Quickly place the media into the sample containers.

D. Fill and lightly compress the media into the sample containers **UNTIL** no voids are evident.

> **CAUTION**
>
> Failure to fill sample container completely with solids for VOC analysis may allow VOCs to escape from the sample.

E. Repeat Steps 6.6.2.B through 6.6.2.D **UNTIL** media is even with top of sample container.

F. Replace cap on sample container.

6.6.3 Prepare sample container for transport as follows:

A. Firmly tighten the cap.

B. Using a lint-free wipe, clean external surface of sample container.

C. Initial and date custody tape.

D. Using custody tape, seal the container.

E. Complete **AND** apply two-part sample labels according to EP-SMS-004.

> **CAUTION**
>
> Failure to follow sample preservation requirements may cause sample degradation and invalid lab results.

F. **IF** TSAP indicates cooling is required, **THEN** place sample containers in ice chest maintained at 4° C.

G. Complete appropriate field documentation, including the following:

1. Field Logbook, according to EP-SMS-001, including any deviations related to th performance of the sampling round.

2. SWAR/CR, according to SSOP-0018, Processing the Site-Wide Analysis Request/Custody Record for Sample Control.

H. As soon as possible after sampling event, deliver samples and SWAR/CR forms to FEMP Receiving Lab.

I. **IF** excess media remains in the sampling tools or stainless steel pans(s), **THEN** emp excess media into a plastic bag until sampling event is complete.

6.6.4 **IF** sample required for non-VOC analysis, **THEN** do this:

A. Remove cap from sample containers specified in TSAP.

B. Using the decontaminated stainless steel scoop, spoon, or trowel extract soil sample

C. Fill sample container.

D. Replace cap on sample container.

E. **IF** excess media remains in the sampling tools or stainless steel pan(s), **THEN** empt excess media into a plastic bag until sampling event is complete.

F. Prepare for transport according to Step 6.6.3.

6.6.5 **IF** composited sample required, **THEN** do this:

> **NOTE**
>
> **DO NOT** composite samples collected for VOC analysis.

A. Collect a sufficient volume of media to meet TSAP requirements.

B. **WHEN** a sufficient volume of sample has been collected, composite the sample media as follows:

1. Using the stainless steel scoop, divide the entire volume into four relatively even quarters.
2. Mix opposite quarters together.
3. Mix the resulting halves together.
4. Repeat Steps 1 through 3 a second time.

C. Using decontaminated stainless steel scoop, spoon, or trowel empty composited soil sample into the sample containers specified in TSAP.

D. Replace cap on sample container.

E. Prepare for transport according to Step 6.6.3.

## 6.7 Sample Event Completion

**SMS Technician**

6.7.1 After all samples have been extracted from a sample locations, fill all hole(s) and depressions remaining as a result of sampling activities as follows:

A. Fill hole(s) with bentonite to within four inches of the surface.

B. Saturate bentonite with deionized water.

C. WHEN the bentonite is fully expanded, THEN fill the remaining four inches of the hole with patching concrete.

D. Using cones and tape, protect the area from traffic until concrete is cured.

6.7.2 Package and process plastic bag containing excess sample media and other derived waste according to SSOP-0035.

6.7.3 Decontaminate equipment according to EP-SMS-003.

6.7.4 Deliver QC samples according to EP-SMS-002.

6.7.5 Archive samples according to TSAP.

6.7.6 Complete documentation and sampling event according to EP-SMS-004.

**Lead Technician**

6.7.7 Verify sampling event completed according to EP-SMS-004.

6.7.8 Complete Material Evaluation Form (MEF) according to SSOP-0002, Completing the Material Evaluation Form.

**7.0 RECORDS**

7.1 Field Logbook

7.2. Site-Wide Analysis Request/Custody Record for Sample Control, FS-S-3361

7.3 Material Evaluation Form, FS-F-3252

7.4 PWP and TSAP

**8.0 ATTACHMENTS**

None

# APPENDIX G

# ENVIRONMENTAL MONITORING PROCEDURE

# EP-SMS-013

# "DISPOSITION OF INVESTIGATION-DERIVED WASTES"

NOTE: This copy of the Investigation-Derived Wastes Procedure is an uncontrolled document. Verify current revision is being used prior to implementation.

| | | |
|---|---|---|
| FERMCO Fernald Environmental Restoration Management Corporation | ENVIRONMENTAL SAFETY AND HEALTH DIVISION<br><br>ENVIRONMENTAL PROTECTION<br>ENVIRONMENTAL MONITORING & SURVEILLANCE<br>SITE MEDIA SAMPLING | PROC NO: EP-SMS-003<br>EFFECTIVE DATE: 12/13/93<br>REVISION NO: 0 |
| TITLE: Equipment Decontamination | | PAGE 1 OF 14<br>AUTHOR: M. Gibson |
| APPROVAL: Michael F. Ramirez, Manager, Site Media Sampling | | DATE: 12-2-93 |

*Supersedes EM-SM-001, Rev. 1*

TABLE OF CONTENTS

UNCONTROLLED


| SECTION | TITLE | PAGE |
|---|---|---|
| | SUMMARY LOG | 2 |
| 1.0 | PURPOSE | 3 |
| 2.0 | SCOPE | 3 |
| 3.0 | REFERENCES | 3 |
| 4.0 | DEFINITIONS | 4 |
| 5.0 | RESPONSIBILITIES | 4 |
| 6.0 | PROCEDURE | 5 |
| 6.1 | General Requirements | 5 |
| 6.2 | General Preparation | 6 |
| 6.3 | Decontamination Line Setup | 7 |
| 6.4 | Decontamination Process | 10 |
| 6.5 | Decontamination Verification | 12 |
| 6.5 | Decontamination Line Removal | 13 |
| 7.0 | RECORDS | 14 |
| 8.0 | ATTACHMENTS | 14 |

## SUMMARY LOG

| Revision Number | Description of Revision | Pages Affected |
|---|---|---|
| 0 | Initial Implementation | All |
| | | |
| | | |
| | | |
| | | |

## 1.0 PURPOSE

This procedure establishes field methods for cleaning and decontaminating sampling equipment for Fernald Environmental Restoration Management Corporation (FERMCO), Environmental Safety & Health (ES&H) Division, Environmental Monitoring & Surveillance (EMS), Site Media Sampling (SMS).

## 2.0 SCOPE

This procedure applies to SMS Technicians decontaminating equipment in the field.

## 3.0 REFERENCES

### 3.1 Source Documents

Site-Wide CERCLA Quality Assurance Project Plan (SCQ)

### 3.2 Interface Documents

3.2.1 Project Work Package (PWP) which includes the Task-Specific Sample and Analysis Plan (TSAP)

3.2.2 EP-SMS-001, Field Logbook

3.2.3 EP-SMS-002, Field Quality Control Samples

3.2.4 EP-SMS-004, Conduct and Coordination of Field Operations

3.2.5 SSOP-0035, Accumulating Hazardous Waste in Satellite Accumulation Areas and Interim Containers

3.2.6 SSOP-0002, Completing the Material Evaluation Form

3.2.7 SP-P-35-023, Radiological Contamination Surveys

3.2.8 EM-GW-007, HNu HW-101 Portable Photoionization Detector-Maintenance and Use.

## 4.0 DEFINITIONS

4.1 **Derived Wastes** - Wastes generated in the performance of Site Media Sampling activities. These waste include, but are not limited to: disposable extraction tools; disposable Personal Protective Equipment (PPE) such as Tyvek coveralls, gloves or booties; excess environmental media materials such as soil or water; decontamination solutions/rinsates.

4.2 **Equipment Rinsate** - Deionized water used for final rinse of sampling equipment during the decontamination procedure.

4.3 **Level I Decontamination** - Cleaning process for equipment, tools, and other items that do not come into direct contact with sampled media. [SCQ]

4.4 **Level II Decontamination** - Cleaning process for sampling equipment that directly contacts the sampled media, even if there is no sign of contamination. [SCQ]

4.5 **Level III Decontamination** - Cleaning process required, after Level II Decontamination, if visible contamination remains (such as stains, discolorations, or particles), or if contamination is detectable by screening with field instruments.

4.6 **Project Walkdown** - A tour of the sampling site by all involved parties prior to the development of the Task-Specific Sampling and Analysis Plan for the purpose of answering questions and solving problems related to the proposed sampling effort.

4.7 **Project Work Package (PWP)** - Document packet used in the field containing, but not limited to, the following:

A. Project-Specific Health and Safety Plan (H&SP)
B. Task-Specific Sampling and Analysis Plan (TSAP)
C. Permits
D. Interface documents

4.8 **Task-Specific Sampling and Analysis Plan (TSAP)** - The document which specifies sampling methods, locations, amounts, preservatives, quality control, and documentation requirements for a specific sampling effort. The TSAP incorporates requirements of the Site-Wide CERCLA Quality Assurance Project Plan (SCQ).

4.9 **Work Zone** - An area of limited access established at a sampling site with barriers, signs tape, and permits to control entry by non-authorized personnel.

## 5.0 RESPONSIBILITIES

### 5.1 SMS Manager

Ensures only trained personnel perform this procedure.

### 5.2 Lead Technician

Oversees equipment decontamination activities.

### 5.3 SMS Technician

Decontaminates sampling equipment.

## 6.0 PROCEDURE

> **NOTE**
>
> Additional component-specific Personal Protective Equipment (PPE) and safety requirements are identified in Project Work Package (PWP).

### 6.1 General Requirements

**SMS Manager**

**6.1.1 Training**

Ensure all personnel are properly trained on this procedure.

**SMS Technicians**

**6.1.2 Precautions**

A. Failure to wear protective gloves **AND** splash protection may result in exposure to hazardous or radioactive materials.

B. Failure to exercise care while walking on plastic sheeting may increase the possibility of injury from a fall.

C. Failure to wear clean protective gloves, or to change gloves between decontamination stages, may result in equipment contamination.

D. Failure to decontaminate sampling equipment between sample points **AND** before moving to a new sampling site could result in sample cross-contamination.

**6.1.3 Equipment List**

A. Three 5-gallon stainless steel buckets
B. Plastic sheeting (Herculite® or equivalent)
C. 2 polyethylene brushes
D. 3 portable pressure sprayers filled with deionized, organic-free (ASTM Type II) water
E. Latex gloves
F. Nitrile gloves
G. 1 bung-type drum
H. 1 transferring funnel
I. Lint-free wipes (such as AccuWipes®)
J. Clean plastic bags
K. 1 large clean plastic bag
L. Vinyl tape
M. Safety goggles
N. Aluminum foil
O. Deionized, organic-free (ASTM Type II) water
P. Utility knife
Q. QC Sample containers
R. Biodegradable phosphate-free detergent (such as Detergent 8®, or Liquinox)
S. 3-inch polyvinyl chloride (PVC) pipe with absorbent spill booms (Required IF container-method in "S" not used)
T. Dedicated containment system with wading pool (Required IF dike-method in "R" not used)
U. 1 portable pressure sprayer filled with 0.02 normal solution of hydrochloric or sulfuric acid IF Level III decontamination required
V. 1 portable pressure sprayer filled with pesticide-grade methanol IF Level III decontamination required
W. Portable Geiger-Mueller survey meter
X. Portable PID survey meter

**6.2 General Preparation**

**SMS Technicians**

6.2.1 IF equipment needing decontamination was used in sampling areas designated as Hazardous Waste Management Areas (HWMUs), THEN:

A. Package equipment in plastic bags.

B. Transport equipment to the FEMP Decontamination Facility for cleaning in lieu of field decontamination.

**Lead Technician**

6.2.2 Identify TSAP requirements for the following:

A. Decontamination requirements for sampling equipment

B. Equipment rinsate Quality Control (QC) requirements

6.2.3 Deliver Field Logbook and environmental media samples to the work zone according to EP-SMS-001, Field Logbook.

6.2.4 Deliver required QC sample containers to work zone according to EP-SMS-002, Field Quality Control Samples.

6.2.5 Attend project walkdown according to EP-SMS-004, Conduct and Coordination of Field Operations.

6.2.6 **WHEN** handling acids, ensure adequate water supply is available for flushing a burn or injury.

**6.3 Decontamination Line Setup**

**Lead Technician**

> **CAUTION**
>
> Failure to decontaminate sampling equipment between sample points **AND** before moving to a new sampling site could result in sample cross-contamination.

6.3.1 Oversee equipment decontamination activities.

**SMS Technician**

6.3.2 Within established work zone, set up **Initial Containment Area** for Primary Wash and Secondary Wash Stages as follows:

A. Using a utility knife, cut a 15-foot by 4-foot section of plastic sheeting (Herculite® or equivalent).

B. Spread the plastic sheet on the ground.

**WARNING**

**Failure to exercise care while walking on plastic sheeting may increase the possibility of injury from a fall.**

C. **IF** using dike-method to establish the containment areas, **THEN** do this:

1. Establish 2 containment areas 5 feet apart on the plastic sheet.
2. Lay absorbent spill booms **OR** 3-inch PVC pipe along inside edge of plastic sheet.
3. Fold edges of plastic sheet over pipe or boom.
4. Using vinyl tape, tape plastic sheet in place.

D. **IF** using the container-method to establish the containment areas, **THEN** do this:

1. Establish 2 containment areas 5 feet apart on the plastic sheet.
2. Place 4-foot by 4-foot dedicated containment systems **OR** wading pools 5 feet apart on the plastic sheet.

6.3.3 Within established work zone, set up **Final Rinse Containment Area** as follows:

A. Establish the final stage at least 5 feet from the initial stage.

B. Using a utility knife, cut a 4-foot by 4-foot section of plastic sheeting (Herculite® or equivalent).

C. Spread the plastic sheet on the ground.

D. **IF** using dike-method to establish the containment area, **THEN** establish containment area as follows:

1. Lay absorbent booms **OR** 3-inch PVC pipe along inside edge of Herculite® sheet.
2. Fold edges of plastic sheet over 3-inch PVC pipe or boom.
3. Using vinyl tape, tape plastic sheet in place.

E. **IF** using the container-method to establish the containment area, **THEN** place a 4-foot by 4-foot dedicated containment system **OR** wading pool on top of Herculite® sheet.

6.3.4 **IF** doing Level I or Level II Decontamination, **THEN** prepare solutions as follows:

> **NOTE**
>
> Level I decontamination can be performed using steam-cleaning or high-pressure potable water wash at FEMP Decontamination Facility.

A. Primary Wash Stage (PWS)

1. Place one 5-gallon stainless steel bucket in PWS containment area.
2. Place one polyethylene brush inside the bucket.
3. Place 4 ounces of phosphate-free detergent in PWS bucket **AND** add deionized, organic-free water until liquid level in bucket reaches 2½ inches.
4. Place one sprayer filled with deionized water in PWS containment area next to bucket.

B. Secondary Wash Stage (SWS)

1. Repeat Step 6.3.4.A for SWS bucket.

C. Final Rinse Stage (FRS)

1. Place one 5-gallon stainless steel bucket in FRS containment area.
2. Place one sprayer filled with deionized water in FRS containment area next to bucket.

6.3.5 **IF** doing Level III Decontamination, **THEN** prepare solutions as follows:

A. Primary Wash Stage (PWS)

Repeat Step 6.3.4.A

B. Secondary Wash Stage (SWS)

1. Place one 5-gallon stainless steel bucket in SWS containment area.

2. Place one sprayer filled with 0.02 normal solution of hydrochloric or sulfuric acid next to bucket.

3. Place one sprayer filled with deionized water next to bucket.

4. Place one sprayer filled with 100% pesticide-grade methanol next to bucket.

C. Final Rinse Stage (FRS)

Repeat Step 6.3.4.C

## 6.4 Decontamination Process

**SMS Technician**

### 6.4.1 Primary Wash Stage (PWS) Cleaning

**WARNING**

Failure to wear protective gloves **AND** splash protection may result in exposure to hazardous or radioactive materials.

**CAUTION**

Failure to wear clean protective gloves, or to change gloves between decontamination stages, may result in equipment contamination.

A. Don clean PWS nitrile gloves **AND** safety goggles.

B. **IF** Level I **OR** Level II **OR** Level III Decontamination:

1. Using PWS cleaning solution and brush, thoroughly wash sampling equipment.

2. Raise the sampling equipment slightly above the level of water in the bucket.

3. Using deionized water sprayer, spray-rinse sampling equipment.

C. Place equipment in the Secondary Wash Stage (SWS) bucket.

6.4.2 **Transition Between Stages**

A. Remove PWS gloves **AND** place them in a dedicated spot within PWS containment areas.

B. Don clean SWS nitrile gloves.

6.4.3 **Secondary Wash Stage (SWS) Cleaning**

A. **IF Level I OR Level II Decontamination:**

1. Using SWS solution and brush, thoroughly wash sampling equipment.

2. Raise the sampling equipment slightly above the level of water in the bucket.

3. Using deionized water sprayer, spray-rinse sampling equipment.

B. **IF Level III Decontamination:**

1. Holding sampling equipment above bucket, spray-rinse with 0.02 normal solution of hydrochloric or sulfuric acid.

2. Continuing to hold equipment above the bucket **AND** above the level of liquid in the bucket, spray-rinse sampling equipment with deionized water sprayer.

3. Continuing to hold equipment above the bucket **AND** above the level of liquid in the bucket, spray-rinse sampling equipment with 100% pesticide-grade methanol.

> **CAUTION**
>
> If equipment comes into contact with solution mixture in SWS bucket, it must be spray-rinsed again with the 100% pesticide-grade methanol before being placed in the FRS bucket.

C. Place equipment in the Final Rinse Stage (FRS) bucket.

6.4.4 **Transition Between Stages**

A. Remove SWS gloves **AND** place them in a dedicated spot within SWS containment ares.

B. Don clean Final Rinse Stage (FRS) nitrile gloves.

6.4.5 **Final Rinse Stage (FRS)**

A. **IF** Level I **OR** Level II Decontamination:

1. Using deionized water, thoroughly spray-rinse the sampling equipment two times.

2. Visually inspect sampling equipment for gross contamination.

B. **IF** Level III Decontamination:

1. Using deionized water, thoroughly spray-rinse the sampling equipment three times.

2. Visually inspect sampling equipment for gross contamination.

C. **IF** visual inspection reveals contamination, **THEN** repeat Primary and Secondary Wash Stage cleaning processes.

6.4.6 From Final Rinse Stage, collect 1 equipment rinsate sample for every 20 pieces of equipment or one per sampling round, as directed by **PWP AND** according to procedure EP-SMS-002, Field Quality Control Samples.

6.4.7 Allow equipment to air dry.

**6.5 <u>Decontamination Verification</u>**

**SMS Technician**

6.5.1 Using a portable Geiger-Mueller (GM) meter, survey the decontaminated sampling equipment for radiological contamination according to SP-P-35-023, Radiological Contamination Surveys.

6.5.2 Using a portable Photoionization Detector (PID), survey the decontaminated sampling equipment for organic contamination according to EM-GW-007, HNu HW-101 Portable Photoionization Detector-Maintenance and Use.

6.5.3 **IF** survey does not indicate contamination levels exceeding background conditions, **THEN** immediately wrap as follows:

A. **IF** sampling equipment is to be used next for VOC sample collection, **THEN** wrap in aluminum with shiny side out.

B. **IF** sampling equipment is to be used next for **Non-VOC** sample collection, **THEN** wrap in plastic bag.

6.5.4 **IF** survey does indicate contamination levels exceeding background condition levels, **THEN** repeat Section 6.4 **AND** 6.5 for Level III Decontamination for each piece of sampling equipment that still shows traces of contamination.

6.5.5 IF sampling equipment continues to show contamination after repeated decontamination, THEN

A. Using 2 layers of plastic, wrap equipment.

B. Using vinyl tape, seal plastic wrap.

C. Consult Radiological Control to monitor equipment prior to transportation to the FEMP Decontamination Facility for Level III decontamination.

**6.6 Decontamination Line Removal**

**SMS Technician**

6.6.1 Collect derived liquid waste as follows:

A. Using a transferring funnel, transfer the contents of the PWS bucket into the bung-type drum.

B. Allowing rinse to drain into SWS bucket, thoroughly spray-rinse PWS bucket with deionized water.

C. Using lint-free wipes, dry the PWS bucket.

D. Place clean plastic bag over PWS bucket.

E. Using a transferring funnel, transfer the contents of the SWS bucket into the bung-type drum.

F. Allowing rinse to drain into the FRS bucket, thoroughly spray-rinse SWS bucket with deionized water.

G. Using lint-free wipes, dry the SWS bucket.

H. Place clean plastic bag over SWS bucket.

I. Using a transferring funnel, transfer the contents of the FRS bucket into the bung-type drum.

J. Using a transferring funnel to catch and drain rinse into the bung-type drum, thoroughly spray-rinse FRS bucket with deionized water.

K. Using lint-free wipes, dry the FRS bucket.

L. Place clean plastic bag over FRS bucket.

6.6.2 Complete decontamination line removal as follows:

A. Stack the three buckets, making sure plastic is between each bucket.

B. Place stack of 3 buckets inside clean, plastic bag.

C. Using 1-inch yellow vinyl tape, seal the plastic bag.

D. Place the following derived wastes into additional plastic bags:

1. Used lint-free wipes
2. Plastic sheeting
3. Other derived solid waste

E. Using 1-inch yellow vinyl tape, seal plastic bags.

6.6.3 Process derived wastes according to SSOP-0035, Accumulating Hazardous Waste in Satellite Accumulation Areas and Interim Containers.

6.6.4 Initiate Material Evaluation Form (MEF) according to SSOP-0002, Completing the Material Evaluation Form.

6.6.5 Complete documentation according to EP-SMS-004.

6.6.6 Deliver equipment rinsate samples according to EP-SMS-002.

**Lead Technician**

6.6.7 Ensure that sampling equipment decontamination activities are completed.

6.6.8 Ensure that derived waste is packaged according to SSOP-0035.

**7.0 RECORDS**

7.1 Material Evaluation Form, FS-F-3252

7.2 Site-Wide Analysis Request/Custody Record, FS-F-3361

7.3 Field Logbook

7.4 PWP/TSAP

**8.0 ATTACHMENTS**

None

# APPENDIX G

# ENVIRONMENTAL MONITORING PROCEDURE

# EP-SMS-013, "DISPOSITION OF INVESTIGATION-DERIVED WASTES"

NOTE: This copy of the Investigation-Derived Wastes Procedure is an uncontrolled document. Verify current revision is being used prior to implementation.

| | | |
|---|---|---|
| FERMCO Restoration Management Corporation | ENVIRONMENTAL DIVISION<br><br>ENVIRONMENTAL PROTECTION<br>ENVIRONMENTAL MONITORING & SURVEILLANCE<br>SITE MEDIA SAMPLING | PROC NO: EP-SMS-013<br>EFFECTIVE DATE: 07/05/94<br>REVISION NO: 0 |
| TITLE: Disposition of Investigation-Derived Wastes | | PAGE 1 OF 12<br>AUTHOR: G. Henderson |
| APPROVAL: Michael F. Ramirez<br>Michael F. Ramirez, Manager, Site Media Sampling | | DATE: 6/27/94 |

## TABLE OF CONTENTS


| SECTION | TITLE | PAGE |
|---|---|---|
| | SUMMARY LOG | 2 |
| 1.0 | PURPOSE | 3 |
| 2.0 | SCOPE | 3 |
| 3.0 | REFERENCES | 3 |
| 4.0 | DEFINITIONS | 4 |
| 5.0 | RESPONSIBILITIES | 4 |
| 6.0 | PROCEDURE | 5 |
| | 6.1 General Requirements | 5 |
| | 6.2 Disposition of Contact Wastes | 5 |
| | 6.3 Disposition of Decontamination Solutions | 7 |
| 7.0 | RECORDS | 8 |
| 8.0 | ATTACHMENTS | 8 |


UNCONTROLLED

## SUMMARY LOG

| Revision Number | Description of Revision | Pages Affecte |
|---|---|---|
| 0 | Initial Implementation | All |
| | | |
| | | |
| | | |
| | | |

UNCONTROLLED

| Disposition of Investigation Derived Wastes | PROC NO: EP-SMS-013 |
|---|---|
| | REV NO: 0 |
| | PAGE 3 OF 12 |

## 1.0 PURPOSE

This procedure establishes field methods for disposition of investigation derived wastes (IDW) for Fernald Environmental Restoration Management Corporation (FERMCO), Environmental Programs (ENV) Division, Environmental Monitoring & Surveillance (EMS), Site Media Sampling (SMS).

## 2.0 SCOPE

This procedure applies to Site Media Sampling Technicians who are extracting samples according to a Task-Specific Sample and Analysis Plan (TSAP).

## 3.0 REFERENCES

### 3.1 Source Documents

3.1.1 Site-Wide CERCLA Quality Assurance Project Plan (SCQ)

3.1.2 SSOP-0002, Initiating Waste Characterization Activities Using the Material Evaluation Form (MEF).

3.1.3 SSOP-0035, Accumulating Hazardous Waste in Satellite Accumulation Areas and Interim Containers

3.1.4 SOP 20-C-625, Evaluating Low Level Radioactive Waste (LLRW) Bulk Waste Streams for Shipment.

3.1.5 SSOP-0044, Management of Soil, Debris, and Waste from a Project.

3.1.6 SSOP-0008, Preparing and Transferring Uncharacterized Waste to the Controlled Holding Area.

### 3.2 Interface Documents

3.2.1 Project Work Package (PWP) which includes the TSAP

3.2.2 EP-SMS-001, Field Logbook

3.2.3 EP-SMS-003, Equipment Decontamination

3.2.4 EP-SMS-004, Conduct and Coordination of Field Operations

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## 4.0 DEFINITIONS

4.1 **Investigation-Derived Waste (IDW)** - Wastes generated in the performance of Site Mec Sampling activities. These wastes include, but are not limited to: disposable extraction tools; disposable Personal Protective Equipment (PPE) such as Tyvek coveralls, gloves booties; excess environmental media materials such as soil; decontamination solutions/rinsates.

4.2 **VOC-Contaminated Waste** - Waste materials, primarily liquid, containing Volatile Organic Compounds (VOCs).

4.3 **Contact Waste** - Any non-decontaminable (disposable) tools, equipment, and PPE whic directly contacts media being sampled and/or associated potentially contaminated surfaces and substances.

4.4 **Task-Specific Sampling and Analysis Plan (TSAP)** - The document which specifies sampling methods, locations, amounts, preservatives, quality control, and documentatio for a specific sampling effort. The TSAP incorporates requirements of the Site-Wide CERCLA Quality Assurance Project Plan (SQQ).

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4.5 **Project Work Package (PWP)** - Document packet used in the field containing, but not limited to, the following:

A. Task-Specific Health and Safety Plan (H&SP)
B. Task-Specific Sampling and Analysis Plan (TSAP)
C. Permits
D. Interface documents

4.6 **Work Zone** - An area of limited access established at a sampling site with barriers, sign tape, and permits to control entry by non-authorized personnel.

## 5.0 RESPONSIBILITIES

### 5.1 Lead Technician

5.1.1 Ensures required waste containers and associated equipment are available at the sampling location.

5.1.2 Oversees waste collection and packaging activities.

5.1.3 Ensures documentation is completed.

5.2 Site Media Sampling (SMS) Technician

5.2.1 Packages and disposes of IDW according to this procedure.

5.2.2 Completes appropriate field documents.

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6.0 PROCEDURE

6.1 General Requirements

Lead Technician

6.1.1 Verify work zone is prepared according to EP-SMS-004, Conduct and Coordination of Field Operations.

6.1.2 Verify waste containers are present at work the zone according to SSOP-0035, Accumulating Hazardous Waste in Satellite Accumulation Areas and Interim Containers.

6.2 Disposition of Contact Wastes

6.2.1 Following the completion of task-specific assignments, the SMS sampling team shall place all initial contact waste into supplied polyethylene bags used for disposal of radiologically contaminated materials.

> **NOTE**
>
> Do not remove personal protective equipment prior to containing initial contact wastes.

6.2.2 Transport the bagged initial contact wastes to the entrance to the exclusion zone buffer area.

6.2.3 At the exclusion zone buffer area, remove remaining PPE and respiratory equipment as per Radiological Worker training.

**NOTE**

Respirator cartridges shall be removed from used respirators and shall be considered as IDW contact waste.

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6.2.4 Seal the polyethylene bag containing all contact wastes using plastic tape, and place into a second polyethylene bag. As with the first bag, seal the second polyethylene bag using plastic tape.

6.2.5 All radiological contact waste shall remain at the control point and will be dispositioned by Radiological Control as low level radiological waste.

6.2.6 If the task-specific assignment has included the sampling of waste which is a listed RCRA Hazardous Waste, proceed as in 6.2.2 through 6.2.5, but also implement the following:

A. Examine all contact wastes. If there is no visible contamination on PPE or the initial contact waste, dispose of the waste as low-level radiological waste as in Steps 6.2.2 through 6.2.5.

B. If there are visible signs of contamination, dispose of stained material in a separate polyethylene bag as in Steps 6.2.2 through 6.2.5, except deposit the bag in a 55-gallon drum designated for the disposition of low-level mixed waste. This drum shall remain at the exclusion zone but shall be dispositioned as follows:

1. Obtain a W-65 card from the Material Control and Accountability (MC&A) clerk in Plant 1 and complete the applicable information.

2. Obtain a Material Evaluation Form (MEF) or an MEF Verification Form from Waste Characterization, complete the appropriate information, and submit to Waste Characterization.

3. After completion of the W-65 card and the applicable MEF, contact Logistics Administration & Inventory Control & Warehousing (LA&IC&W) to transport the drum to an appropriate storage area.

4. The SMS sampling team lead shall obtain copies of the W-65 card and the applicable MEF, and assign copies to the SMS Task-Specific Sampling and Analysis Plan (TSAP) and to a bound log for W-65 cards and SMS-generated MEFs. (see Sample Coordination Unit - SCU)

5. For SMS tracking and accountability purposes, complete the SMS Waste Disposition Log. (see SCU)

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6.3 **Disposition of Decontamination Solution**

6.3.1 Following the completion of task specific assignments, the SMS sampling team shall decant all decontamination solutions into a 5-gallon container placed within the diked decontamination area, which is in the exclusion area.

6.3.2 Remove the 5-gallon container of liquid IDW to the buffer zone and monitor the container out of the exclusion zone.

6.3.3 Transport the 5-gallon container of liquid IDW to Building 3G.

6.3.4 Decant the liquid IDW from the 5-gallon container into a 55-gallon drum designated for task-specific IDW decontamination solution.

6.3.5 Complete the assigned IDW log with date, project name, sample plan number, and approximate amount of liquid IDW added to the 55-gallon drum.

6.3.6 Continue additions in this manner until the designated 55-gallon IDW Decontamination Solution drum has been filled, listing all applicable projects onto the IDW log.

6.3.7 When the 55-gallon drum has been filled and the IDW log completed, obtain an MEF from Waste Characterization.

6.3.8 Complete the MEF and submit to Waste Characterization.

6.3.9 If the IDW meets criteria for verification to MEF #2493, by Waste Characterization concurrence, the 55-gallon drum of liquid IDW may be dispositioned through the General Sump.

A. Contact the Plant 8 MC&A clerk to obtain a W-65 card.

B. Complete all pertinent information on the W-65 card and copy the card to all of the task-specific project files and to the SMS MEF/W-65 log.

6.3.10 If the IDW does not meet the criteria for verification to MEF #2493, or if a RCRA Hazardous Waste was sampled, Waste Characterization will not grant permission for disposal through the General Sump, and the following applies:

A. Contact the Plant 8 MC&A clerk to obtain a W-65 card.

B. Complete all pertinent information on the W-65 card and send the completed card the Plant 1 MC&A clerk.

C. Contact Logistics Administration & Inventory Control & Warehousing (LA&IC&W for transportation to the appropriate storage area until disposition through the Plan 8 VOC treatment system.

6.3.11 If the task-specific assignment has included the sampling of waste which is a listed RCRA hazardous waste, or if methanol was used in decontamination, proceed as in Steps 6.3.1 through 6.3.8, but implement the following:

A. Obtain an MEF Verification Form from Waste Characterization, complete the appropriate information, and submit to Waste Characterization.

B. After completion of the W-65 card and the applicable MEF, contact Logistics Administration & Inventory Control & Warehousing (LA&IC&W) for transportatic to the appropriate storage area.

6.3.12 When the liquid IDW contains a one or a mixture of .02 Normal solution hydrochloric sulfuric acid, or dilute sample preservatives, proceed as in Steps 6.3.2 through 6.3.8.

6.3.13 Until a final FEMP IDW Policy is approved by OEPA, do not proceed to disposition a aqueous IDW containing RCRA listed waste. Any aqueous IDW containing either a RCRA listed waste or any VOC with a concentration greater than **100 ppb** will be managed through the Plant 8 VOC treatment system.

6.3.14 Contact the FEMP RCRA warehouse facility owner and have Logistics Administration Inventory Control & Warehousing (LA&IC&W) deliver the filled drum of VOC-contaminated or listed waste for storage, characterization, and future disposition.

**7.0 RECORDS**

UNCONTROLLE

7.1 Field Logbook

7.4 PWP and TSAP

**8.0 ATTACHMENTS**

8.1 Attachment A - Card 65-1 (W-65 Card), Item Production/Certification/Identification.

8.2 Attachment B - Material Evaluation Form

| Disposition of Investigative Derived Wastes | PROC NO: EP-SMS-013 |
|---|---|
| | REV NO: 0 |
| | PAGE 9 OF 12 |

# ATTACHMENT A

## W-65 CARD

**CARD 65-1 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION** INV. NO.:

| P. O. NO. | SOURCE | CLASS | MATERIAL TYPE | LOT SEQUENCE NO. | DATE MO | DAY | YEAR | SHIFT | BADGE NO. | CONT. NO. | SERIAL NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |

| SEAL NUMBER | SEAL DATE MONTH | DAY | YEAR |
|---|---|---|---|
| | | | |

| WASTE DESCRIPTION AND COMMENTS |
|---|
| |

| | |
|---|---|
| PACKAGE TYPE | |
| PACKAGE SIZE | |
| PROJECT | |

| PACKAGE PHYSICAL CERTIFICATION | YES | NO |
|---|---|---|
| EMPTY CONTAINER AT START | | |
| RUST HOLES OR DENTS | | |
| MATERIAL IS AS CODED | | |
| PROHIBITED MATERIALS | | |
| LIQUIDS IN CONTAINER | | |
| MINIMUM OF VOID SPACE | | |
| PACKAGE SECURED | | |
| DRAIN PLUG SECURED | | |
| OVERPACK | | |
| REPACK | | |

| PLANT | PROD. MBA | REF NO. |
|---|---|---|
| | | |
| DCAR | SURV. NO. | GROSS WEIGHT |
| | | |
| | | TARE WEIGHT |
| | | NET WEIGHT |

GENERATOR SIGNATURE

SUPERVISOR SIGNATURE DATE

FS-F-1045-1 (REV. 11/20/92)

# ATTACHMENT B

# MATERIAL EVALUATION FORM

**Fernald Environmental Management Project**
**MATERIAL EVALUATION FORM (MEF)**

***Requestor Section***

page 1 of 2

**A. REQUESTOR/WASTE STREAM IDENTIFICATION**

| | | |
|---|---|---|
| 1. MEF#: Original: _____ Revision: _____ | 2. Date Submitted: | 3. Material Type and Source Code: |
| 4. Requestor Name: | 5. Phone No.: | 6. Bldg No./Co. Name: |

**B. GENERATION INFORMATION**

| | | | |
|---|---|---|---|
| 1. Provide best descriptive name for material: | 2. Does this material originate in a IU/WSU or IU/WSU? Sub Name/No. | | 3. Project, Activity, or Work Area generating waste (include CEU # if applicable). |
| 4. Date of first or repeated generation: ☐ unknown ☐ actual _____ | 5. Generation Quantity: | 6. Generation Frequency: | 7. Similar waste stream MEF# (or MTC/SMCs) |

8. Provide a detailed description of what the material is:

9. Provide a detailed description of how and where (specific origin) the waste stream which is generated, including any steps which change the material:

[Note: Generator must attach all supporting documentation mentioned items 8 and 9.] ○ additional narrative: ○ SDP:

○ MSDS: ○ AEDO Log excerpt: ○ release report: ○ manufacturing spec: ○ Other: _____

FORM GEN.FR.1, Revision 2.1, 12/05/94 wcpmmfmgen.fr

000205

| Disposition of Investigative Derived Wastes | PROC NO: EP-SMS-013 |
|---|---|
| | REV NO: 0 |
| | PAGE 11 OF 12 |

# ATTACHMENT B (cont)

**Fernald Environmental Management Project**
**MATERIAL EVALUATION FORM (MEF)**

*Requestor Section*

page 2 of

**C. PHYSICAL CHARACTERISTICS**

1. Describe Color/Appearance:

2. Phase:
☐ Liquid ☐ Solid debris/rubble
☐ Semi-solid/sludge ☐ Dry solid residue
☐ dry powder/dusty residue ☐ Other, specify:

3. Contains Free Liquids:
☐ yes ☐ no ☐ unknown
based on:
☐ PFLT (results attached)
☐ Visuals (results attached)
☐ Knowledge of waste

[NOTE: DO NOT SMELL THE MATERIAL]
4. Note Any Incidental Odor:

5. Layers:
☐ single layer
☐ bi-layered
☐ multi-layered

6. pH: specify range or "unknown"
☐ unknown ☐ documentation attached

7. Flash Point: Specify range or "unknown"
☐ unknown ☐ documentation attached

**D. MATERIAL COMPOSITION**

1. Composition:

| | Min | Max | units |
|---|---|---|---|
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| Total Minimum: | | | % |

maximum must equal or exceed 100 %

Basis:
☐ knowledge of the material
☐ analytical data attached

2. Does the material contain any of the following?
☐ asbestos ☐ polychlorinated biphenyls (PCBs)
☐ infectious waste
☐ reactives (check applicable boxes):
water reactive explosive
spontaneously combustible shock sensitive
extremely reactive
oxidizer materials which normally produce hydrogen gas.
☐ toxicity characteristic metals (check applicable metals):
arsenic barium
cadmium chromium
lead mercury
selenium silver
(or)
☐ None of the above
(or)
☐ Unknown

Basis:
☐ knowledge of the material
☐ analytical data attached

3. Radioactive Contamination:
☐ material is not contaminated with radioactivity
☐ material contains incidental radioactive contamination
☐ radioactivity having material/residue

Radioactivity of Concern if any:
☐ uranium
☐ thorium
☐ transuranics (TRU)

Basis:
☐ knowledge of the material ☐ RADIA generated
☐ analytical data attached ☐ Other: _____

4. Identify the container or repository type(s) in which the waste is for is expected to be managed on-site:
☐ drum ☐ box
☐ Seal/Land ☐ multi/bulk pile
☐ small container (1 gal. or less)
☐ landfill, pit, or other land-based unit
☐ discharge to WWTS

FORM GEN.FEL Revision 2.2, 12/16/94

# ATTACHMENT B cont)

## Instructions to Generators for Completing the Material Evaluation Form (MEF), Requester Section

The Waste Characterization Section is responsible for providing characterization for all waste generated by FEMP [illegible]. However, it is the individual [illegible] responsibility to ensure this further waste is properly characterized in an present form.

The Material Evaluation Form (MEF) is the document by which generator identify material which requires characterization and on which the Waste Characterization group [illegible] the results of the characterization effort. The MEF does not enhance specific waste as identified in the site inventory system, but relates only to the characterization of a particular waste stream referenced by MEF #. Specific generated material is assigned to a particular using the MEF Verification Request Form and Inventory Identification Attachment.

The following directions have been developed to assist in the completion of the generator's section of the MEF. Each block of the form must be completed for MEF to be accepted. Use of 'None' or 'N/A' is acceptable when appropriate. Checklist items shown with a '*' require attached documentation. Upon completion of this form return to Waste Characterization at MS # 46. (Note MEFs will not be accepted with incomplete information or lacking documentation e.g. MSDS release report, etc)

**PART A: GENERATOR/WASTE STREAM IDENTIFICATION**

1. MEF #: Enter number of the form as received from Waste Characterization (x7153). Check whether this submittal is original or a revision to an existing MEF as appropriate.
2. Date Submitted: Enter the date the form is submitted to Waste Characterization.
3. Lot Marketing Code: Enter first the Material Type then the Source Code assigned to the waste if this information is known. Contact Materials Control and Accountability (MCAA), x6771, for assistance in determining this information. Enter "Unknown" if applicable.
4. Generator Name: provide First Name, Last Name and Middle Initial.
5-6. Badge No./Co. Name/Phone No: Self Explanatory

**PART B: GENERATION INFORMATION**

1. Name: Provide the best descriptive name for the material (e.g. spent resins, dust collector residues, soil borings, pump water etc.)
2. SWMU: If the material originates from a Solid Waste Management Unit please provide that name and #. If you are unsure please consult your supervisor, Waste Characterization or engineered CRU representative for assistance.
3. Self-explanatory.
4. Self-explanatory. Always provide a best as estimate. If the waste is "backlogged" or has otherwise already been generated, provide the historical date of generation as an actual date. This information may usually be obtained from existing records or from MCAA. "Unknown" is not acceptable.
5. Generation Quantity: Enter the amount and unit of waste to be generated (i.e. 30 gal). This is generally the amount of waste in a container for a multiple element. If the generation event is one-time only, enter the total amount of waste.
6. Quantity/Frequency: Enter a time period (week, year etc.) during which the amount specified in item 5 will be generated, or "one-time" as appropriate.
7. Similar waste streams: Enter MEF # or Material Type/Source Code for a similar waste stream if known. Otherwise "N/A".
8. Description: Provide a clear concise description of what the waste stream actually is (e.g., residues from dust collector cartridges). Include all components of the waste stream and any relevant information concerning packaging, storerooms etc. Be as detailed as possible. *DO NOT REPEAT THE DESCRIPTION CORRESPONDING TO THE MATERIAL TYPE CODE.*
9. Description of Generation: Provide a detailed description of how the waste stream would be generated. Include specific process involved, history of waste etc. For environmental waste include packaging information (e.g. temperature, product with shortest expiration). Check and include all relevant supporting documentation (e.g. MSDS, SOP, Manufacturing Specifications, Release Reports etc.).

**PART C: PHYSICAL CHARACTERISTICS**

1. Color/Appearance: Be as detailed as space will allow. What does the waste look like?
2. Phases: Check all that are present in the waste.
3. Free Liquids: If yes, check a "based on" criteria.
4. Odor: DO NOT SMELL THE WASTE! If the waste has a known unpleasant odor, then describe the odor (e.g., mild, pungent, solvent, sweet).
5. Layers: Check appropriate box. Single layer means the waste has no distinct separation or layers (e.g., water, or oil, or semi-solid). Bi-layered means the waste is composed of two distinct layers (e.g., water/oil or solvent/solid). Multi-layered means more than two distinct layers (e.g., oil/water/semi-solid).
6. pH: If the waste contains aqueous free liquids, list the range of pH if known. If the pH is not known mark "not known" in the block. If a pH range is entered, check the basis for the range. Documentation may consist of analytical data, MSDS, or pH paper results. For non-aqueous wastes enter N/A.
7. Flash Point: If the waste contains free liquids list the range of its flash point if known, if the flash point is not known, mark "not known" in the block. If a flash point range is entered, check the basis for the range. Documentation may consist of analytical data or MSDS.

**PART D: MATERIAL CONSTITUTION**

1. Composition: List all components which make up the waste stream along with the range of the approximate volume in percent or parts per million. Circle the unit (% or ppm) used for each component. Use ppm only if less than 10,000. Indicate a value of 1% for any component given in ppm which exceeds the "Trace Minimum". If only partial knowledge of the components in the waste stream is available, list those components and provide the approximate percentage of the waste which is unknown. Provide basis for the components in this section.
2. Waste Characterization: Check each box which applies to the waste. Circle units as appropriate. Do not characterize waste "suspected" of being present in the waste. There should be entered in block 2B.
   None of the above - Check this when no entries above apply.
   Not Known - Check this when adequate information is not available to answer the questions above.
   Basis - Check the appropriate box when specific items above are checked.
3. Radionuclide composition: Indicate radionuclide contaminant status of the material. If analytical data is available please attach to form. Contact ESAT for information on radionuclide contaminants of materials waste. Indicate the basis for the checked item. Material Accounting information may be attached as analytical data.

# APPENDIX F

## ENVIRONMENTAL MONITORING PROCEDURE EP-SMS-013

## "DISPOSITION OF INVESTIGATION-DERIVED WASTES"

| | | |
|---|---|---|
| FERMCO Fernald Environmental Restoration Management Corporation | ENVIRONMENTAL DIVISION<br>ENVIRONMENTAL PROTECTION<br>ENVIRONMENTAL MONITORING & SURVEILLANCE<br>SITE MEDIA SAMPLING | PROC NO: EP-SMS-009<br>EFFECTIVE DATE: 06/10/94<br>REVISION NO: 0 |
| TITLE: Sediment/Sludge Sampling | | PAGE 1 OF 27<br>AUTHOR: M. Gibson |
| APPROVAL: Michael F. Ramirez<br>Michael F. Ramirez, Manager, Site Media Sampling | | DATE: 6/6/94 |

## TABLE OF CONTENTS

UNCONTROLLED


| SECTION | TITLE | PAGE |
|---|---|---|
| | SUMMARY LOG | 2 |
| 1.0 | PURPOSE | 3 |
| 2.0 | SCOPE | 3 |
| 3.0 | REFERENCES | 3 |
| 4.0 | DEFINITIONS | 4 |
| 5.0 | RESPONSIBILITIES | 5 |
| 6.0 | PROCEDURE | 6 |
| 6.1 | General Requirements | 6 |
| 6.2 | Sediment/Sludge Sampling with a Stainless Steel Scoop and Auger | 9 |
| 6.3 | Sediment/Sludge Sample Extraction with Coring Tube Extractor | 14 |
| 6.4 | Sediment/Sludge Sampling with a Glass Coliwasa | 21 |
| 6.5 | Sediment/Sludge Sampling with an AMS Sludge Sampler | 25 |
| 6.6 | Sediment/Sludge Sampling with a Clamshell Bottom Dredge | |
| 6.7 | Sediment/Sludge Sampling with a Sludge Judge | |
| 6.8 | Sample Preparation | 28 |
| 6.9 | Event Completion | 32 |
| 7.0 | RECORDS | 32 |
| 8.0 | ATTACHMENTS | 32 |

## SUMMARY LOG

| Revision Number | Description of Revision | Pages Affected |
|---|---|---|
| 0 | Initial Implementation | All |
| | | |
| | | |
| | | |
| | | |

## 1.0 PURPOSE

This procedure establishes field sampling methods for extraction and preparation of sediment and sludge samples for Fernald Environmental Restoration Management Corporation (FERMCO), Environmental Safety & Health (ES&H) Division, Environmental Monitoring & Surveillance (EMS), Site Media Sampling (SMS).

## 2.0 SCOPE

This procedure applies to Site Media Sampling Technicians who are extracting samples according to a Task-Specific Sample and Analysis Plan (TSAP) in which detailed instructions are given for sample collection and preparation.

## 3.0 REFERENCES

### 3.1 Source Documents

3.1.1 Site-Wide CERCLA Quality Assurance Project Plan (SCQ)

3.1.2 Environmental Monitoring/Site Media Sampling Extraction Methodologies: 90-001, 90-007, 91-008, 91-012, 91-016, 92-017.

### 3.2 Interface Documents

3.2.1 Project Work Package (PWP) which includes the TSAP.

3.2.2 EP-SMS-001, Field Logbook

3.2.3 EP-SMS-002, Field Quality Control Samples

3.2.4 EP-SMS-003, Equipment Decontamination

3.2.5 EP-SMS-004, Conduct and Coordination of Field Operations

3.2.6 SSOP-0018, Processing the Site-Wide Analysis Request/Custody Record for Sample Control

3.2.7 SSOP-0035, Accumulating Hazardous Waste in Satellite Accumulation Areas and Interim Containers

3.2.8 SSOP-0002, Completing the Material Evaluation Form

## 4.0 DEFINITIONS

4.1 **Composite Sample** - A sample prepared by mixing or compositing of sample material designed to increase representativeness of the sample location or sample area. Samples being analyzed for unstable parameters, such as VOCs, may be composited at the respective contracted laboratory facility. [Gnoose]

4.2 **Derived Waste** - Wastes generated in the performance of Site Media Sampling activities These wastes include, but are not limited to: disposable extraction tools; disposable Personal Protective Equipment (PPE) such as Tyvek coveralls, gloves or booties; excess environmental media materials such as soil; decontamination solutions/rinsates.

4.3 **Deviation** - A departure from a specified requirement. Deviation can be a condition in which a characteristic of an item does not conform to prescribed limits, a required document is not available or is inadequate, a regulatory requirement was violated, or a procedure does not yield desired results. [SCQ]

4.4 **Non-VOC Analysis** - Laboratory tests and evaluations of sampling media for substances other than Volatile Organic Compounds (VOCs), such as metals, radionuclides, and other inorganics (sulfides, cyanides, etc.).

4.5 **Task-Specific Sampling and Analysis Plan (TSAP)** - The document which specifies sampling methods, locations, amounts, preservatives, quality control, and documentation requirements for a specific sampling effort. The TSAP incorporates requirements of the Site-Wide CERCLA Quality Assurance Project Plan (SCQ).

4.6 **Project Walkdown** - A tour of the sampling site by all involved parties prior to the development of the Task-Specific Sampling and Analysis Plan for the purpose of answering question and solving problems related to the proposed sampling effort.

4.7 **Project Work Package (PWP)** - Document packet used in the field, containing but not limited to, the following:

A. Task-Specific Health and Safety Plan (H&SP)
B. Task-Specific Sampling and Analysis Plan (TSAP)
C. Permits
D. Interface documents

4.8 **Sampling Event** - Collection of a sample from a single location for a specific project. [SCQ]

4.9 **Sample Location** - An area, approximately 12" by 12" square, designated as a location to obtain a sample of specified media. Each sample location may have varying sample depths according to project requirements.

4.10 **Sample Point** - An area designated within a sample location where a media sample will be extracted.

4.11 **Sampling Round** - Collection of samples from one or more locations for a specific project during a specified time period for a similar purpose. [SCQ]

4.12 **Sediments** - Loose, disaggregated materials generated by rock erosion or reworking of soil material and deposited by fluvial, glacial, or aeolian systems.

4.13 **Sludge** - A semi-solid residue that covers a wide range of material. At one extreme a sludge can be material that is at least 1/2 of 1% solid by weight. At the other extreme a sludge can be material that fails the Paint Filter Liquid Test (PFLT), or contains greater than 0.5% liquid by volume.

4.14 **Volatile Organic Compound (VOC) Analysis** - Laboratory test and evaluations of organic sampling media that participates in atmospheric photochemical reactions. These analyses include VOC, Semi-VOC, PCBs, and pesticides/herbicides.

4.15 **Work Zone** - An area of limited access established at a sampling site with barriers, signs, tape, and permits to control entry by non-authorized personnel.

## 5.0 RESPONSIBILITIES

### 5.1 Lead Technician

5.1.1 Ensures required equipment is present at work zone.

5.1.2 Oversees sampling collection activities.

5.1.3 Ensures documentation is completed.

### 5.2 Site Media Sampling (SMS) Technician

5.2.1 Extracts media samples and QC samples.

5.2.2 Completes appropriate field documents.

5.2.3 Delivers samples to FEMP Sample Receiving Laboratory.

5.2.4 Decontaminates sampling equipment.

## 6.0 PROCEDURE

### 6.1 General Requirements

**Lead Technician**

6.1.1 Verify work zone is prepared according to EP-SMS-004, Conduct and Coordination of Field Operations.

6.1.2 Verify required equipment is present at work zone:

A. Extraction equipment according to equipment list in PWP.

B. Environmental media sample containers according to TSAP.

C. Personal protection equipment (PPE) according to H&SP.

D. Field Logbook according to EP-SMS-001, Field Logbook.

E. QC sample containers according to EP-SMS-002, Field Quality Control Samples.

F. Decontamination equipment according to EP-SMS-003, Equipment Decontamination.

G. Waste containers according to SSOP-0035, Accumulating Hazardous Waste in Satellite Accumulation Areas and Interim Containers..

6.1.3 Attend project walkdown of work zone according to EP-SMS-004.

6.1.4 Inspect the sampling locations with the SMS Technician(s) who will be performing the sample extractions.

6.1.5 The following are precautions to be followed by the SMS Technicians:

A. Failure to wear protective gloves AND glasses may result in exposure to hazardous or radioactive materials.

B. Failure to use clean protective gloves AND clean decontaminated sampling equipment may result in sample cross-contamination.

C. Failure to exercise care while walking on plastic sheeting may increase the possibility of injury from a fall.

**NOTE**

Additional PPE, safety requirements, and precautions are identified in the PWP.

D. Failure to fill sample containers completely with sample media for VOC analysis may increase volatilization and impact sample integrity.

E. Failure to follow sample preservation requirements may cause sample degradation and invalidate laboratory-generated data.

6.1.6 Determine methodology and sampling tool specified by the TSAP:

A. **IF** Stainless Steel Scoop and Auger is required for extracting sediment/sludge samples, **THEN** go to Section 6.2.

B. **IF** Coring Tube Extractor is required for extracting sediment/sludge sample, **THEN** go to Section 6.3.

C. **IF** Glass Coliwasa is required for collecting sediment/sludge samples which behave as fluids, **THEN** go to Section 6.4.

D. **IF** AMS Sludge Sampler is required for collecting sediment/sludge samples, **THEN** go to Section 6.5.

E. **IF** Clamshell Bottom Dredge is required for collecting sediment/sludge samples, **THEN** go to Section 6.6.

F. **IF** Sludge Judge is required for collecting sediment/sludge samples, **THEN** go to Section 6.7.

6.1.7 Collect samples for respective analyses in the following order:

A. Total, TCLP, or TCL Volatile Organics.

B. Total, TCLP, or TCL Semi-volatile Organics, Pesticides/Herbicides, and PCBs.

C. Total, TCLP, or TAL Metals and other organics.

D. Radionuclides.

## 6.2 Sediment/Sludge Sampling with a Stainless Steel Auger and Scoop

**SMS Technician**

6.2.1 Assemble hand-operated auger.

6.2.2 **IF** assembled unit does not satisfy sample depth requirement, **THEN** assemble additional extension rods until sample depth requirement is reached.

6.2.3 Consult the PWP for additional personal protective equipment, safety requirements, specific sampling procedure, and sample container requirements.

> **CAUTION**
>
> Failure to use clean gloves **AND** decontaminated sampling equipment may result in sample cross-contamination.

6.2.4 Decontaminate sampling equipment according to EP-SMS-003 before collecting each sample.

6.2.5 Prepare sampling point as follows:

> **WARNING**
>
> Failure to wear protective gloves **AND** glasses may result in exposure to hazardous or radioactive materials.

A. Put on two sets of clean disposable latex gloves.

> **WARNING**
>
> Failure to exercise care while walking on plastic sheeting may increase the possibility of injury from a fall.

B. Place clean plastic sheet (Herculite® or equivalent) adjacent to the sampling location.

C. Place a decontaminated stainless steel pan on the plastic sheet adjacent to the sampling point.

6.2.6 Advance the auger into the media to the depth specified in TSAP.

6.2.7 Remove auger from boring.

6.2.8 **IF** collecting samples for VOC analyses, **THEN** transfer media from auger, using a stainless steel spatula, directly into sample container (identified in the TSAP) in accordance with Step 6.8.2 of this procedure.

6.2.9 **IF** collecting grab samples for non-VOC analysis, **THEN** transfer media from auger into sample containers in accordance with Step 6.8.4 in this procedure.

6.2.10 **IF** collecting sample for non-VOC analysis, **THEN** place media from auger into a decontaminated stainless steel pan **AND** cover pan with plastic sheeting.

6.2.11 **IF** no additional samples required, **THEN** go to Step 6.2.15.

6.2.12 **IF** additional samples are requested, **THEN**:

A. Remove stainless steel auger bit for decontamination.

> **CAUTION**
>
> Failure to use clean gloves **AND** decontaminated sampling equipment may result in sample cross-contamination.

B. Decontaminate stainless steel auger bit according to EP-SMS-003.

C. Put on two sets of clean disposable latex gloves.

D. Replace decontaminated stainless steel auger bit.

E. Place a decontaminated stainless steel pan on the plastic sheet adjacent to the sampling point.

6.2.13 Repeat Steps 6.2.6 to 6.2.12 **UNTIL** all required samples have been collected.

6.2.14 Prepare composite sample in accordance with Step 6.8.5 of this procedure.

6.2.15 **WHEN** no additional depth samples required, **THEN:**

A. Disassemble hand-operated auger.

B. Go to Section 6.9.

## 6.3 Sediment/Sludge Sample Extraction with Coring Tube Extractor

**SMS Technician**

6.3.1 Consult the PWP for additional personal protective equipment, safety requirements, specific sampling procedure, and sample container requirements.

> **CAUTION**
>
> Failure to use clean gloves AND decontaminated sampling equipment may result in sample cross-contamination.

6.3.2 Decontaminate sampling equipment according to EP-SMS-003 before collecting each sample.

6.3.3 Prepare sampling point as follows:

> **WARNING**
>
> Failure to wear protective gloves AND glasses may result in exposure to hazardous or radioactive materials.

A. Put on two sets of clean disposable latex gloves.

> **WARNING**
>
> Failure to exercise care while walking on plastic sheeting may increase the possibility of injury from a fall.

B. Place clean plastic sheet (Herculite® or equivalent) adjacent to the sampling location.

6.3.4 Assemble the coring bit and tube as follows:

A. Lay the Multi-Section Coring Tube and Extractor on the clean plastic sheeting.

B. Insert coring tube sections that will produce the length of core required by the TSAP, up to 36 inches.

C. **IF** sample is to be submitted for radiological analysis, **THEN** insert the corresponding length of plastic tube liners.

D. **IF** the sample is to be submitted for non-radiological analysis, **THEN** insert the corresponding length of stainless steel tube liners.

E. Attach to the top of the coring tube, in this order:

1. Coring tube cap
2. Coring tube assembly
3. Drop hammer adapter

6.3.5 Drive the core sampler as follows:

A. Move the coring tube assembly to the sample point.

B. Attach the drop hammer to the drop hammer adapter on the coring tube.

C. **IF** TSAP specified sampling depth is less than 36 inches, **THEN** use the drop hammer to advance the coring tube assembly to the specified depth.

D. **IF** TSAP specified sampling depth is greater than 36 inches, **THEN** do this:

1. Use the drop hammer to advance the coring tube assembly until approximately 6 inches of the coring tube remain above the surface.

2. Remove the drop hammer, drop hammer adapter, **AND** coring tube cap.

3. Attach additional coring tube sections with required liners **UNTIL** specified sampling depth is reached to a maximum of 72 inches.

4. Replace the coring tube cap, drop hammer adapter, **AND** drop hammer.

E. **IF** TSAP specified sampling depth is less than 72 inches, **THEN** use the drop hammer to advance the coring tube assembly to the specified depth.

F. **IF** TSAP specified sampling depth is greater than 72 inches, **THEN** repeat Step 6.3.5.D until specified depth is reached.

6.3.6 When specified sampling depth is reached extract the core sampler as follows:

A. Remove the drop hammer **AND** drop hammer adapter from the coring tube assembly.

B. Attach the coring tube extractor to the coring tube cap.

C. **IF** sampling depth is less than 36 inches, **THEN** extract the coring tube assembly fron the sample point.

D. **IF** the sampling depth is greater than 36 inches, **THEN**:

1. Extract the coring tube assembly until approximately 42 inches of the assembly is exposed above the surface.

2. With the coring tube cap, detach the upper 36 inches all in one piece from the remaining 6 inches of the coring tube assembly.

3. Place the coring tube on a clean plastic sheet.

4. Remove the coring tube cap.

5. Remove the topmost coring tube section from the remainder of the coring tube.

6. Carefully push the O-ring tube liner containing the sample from the coring tube section.

**NOTE**

For Cores submitted for non-radiological analyses, place stainless steel covers (thin caps) at each end of the core tube prior to sealing with plastic caps and tape.

7. Using color coded caps to indicate in-situ vertical orientation, immediately cap both ends of the coring tube and seal with vinyl tape.

**NOTE:** RED cap indicates TOP / BLACK cap indicates BOTTOM

6.3.7 Repeat Step 6.3.6.D until all samples are removed from the coring tube.

6.3.8 Repeat Steps 6.3.5 through 6.3.7 **UNTIL** required number of cores are extracted.

6.3.9 **WHEN** no additional cores are required, **THEN**

A. Disassemble coring bit and tube.

B. Go to Section 6.9.

## 6.4 Sediment/Sludge Sampling with a Glass Coliwasa

**SMS Technician**

6.4.1 Consult the PWP for additional personal protective equipment, safety requirements, specific sampling procedure, and sample container requirements.

> **CAUTION**
>
> Failure to use clean gloves AND clean decontaminated sampling equipment may result in sample cross-contamination.

6.4.2 Decontaminate sampling equipment according to EP-SMS-003 before collecting each sample.

6.4.3 Prepare sample location as follows:

> **WARNING**
>
> Failure to wear protective gloves AND splash protection may result in exposure to a hazardous material.

A. Don clean protective gloves AND safety goggles.

> **WARNING**
>
> Failure to exercise care while walking on plastic sheeting may increase the possibility of injury from a fall.

B. Place clean plastic sheet (Herculite® or equivalent) adjacent to the sampling location.

6.4.4 Obtain a new, clean COLIWASA for each sample location.

6.4.5 Inspect the inner control rod and the outer surface of the glass container for breaks or cracks.

A. **IF** COLIWASA in broken or cracked, **THEN** dispose of broken or cracked COLIWASA according to Step 6.4.13.

B. **IF** COLIWASA is **NOT** broken or cracked, **THEN** insert the ballet end inner control rod into the outer glass container.

6.4.6 Collect sediment/sludge sample as follows:

A. Raise the inner control rod of COLIWASA several inches above the hole in the outer glass container.

> **NOTE**
>
> Lowering the COLIWASA into the media rapidly may result in a nonrepresentative sample.

B. Keeping the inner control rod several inches above the hole in the outer glass container, slowly lower the COLIWASA into the sediment/sludge being sampled.

C. **WHEN** the COLIWASA contacts the bottom of the sediment/sludge or is filled to its useful capacity, **THEN** push the inner control rod down **UNTIL** the balled end fits into the hole of the outer glass container.

> **NOTE**
>
> Holding down inner control rod firmly will minimize leakage of sampled media from the bottom opening.

D. Holding down on the inner control rod with one hand, slowly withdraw the COLIWASA from the sediment/sludge being sampled with the other hand.

6.4.7 Keeping all activity confined to area covered by plastic sheeting, distribute sampled media according to TSAP requirements.

A. Place the bottom opening of the COLIWASA above the sample container **OR** collection container.

B. Slowly raise the inner control rod about 1 inch while lowering the COLIWASA into the sample media, allowing the liquid to collect into the body of the COLIWASA.

6.4.8 **IF** collecting sample for VOC analysis, **THEN** transfer media from COLIWASA directly into sample container in accordance with Step 6.8.2.

6.4.9 **IF** collecting grab samples for non-VOC analyses, **THEN** transfer media from COLIWASA directly into sample container in accordance with Step 6.8.4.

6.4.10 **IF** collecting a composite sample for non-VOC analysis, **THEN** place media from sampler into a decontaminated stainless steel pan **AND** cover pan with plastic sheeting.

6.4.11 **IF** excess media remains in the COLIWASA, **THEN** empty excess media into a plastic bag until sampling event is complete.

6.4.12 Repeat Steps 6.4.6 and 6.4.7 until sufficient volume of sample media is obtained.

6.4.13 **WHEN** sufficient volume of sample media is collected, **THEN** do this:

A. Prepare composite sample in accordance with Step 6.8.5 of this procedure.

B. Wipe excess media from the surface of the used COLIWASA.

C. Place soiled wipe in a plastic bag for disposal according to SSOP-0035.

D. Break the used COLIWASA as follows:

1. At the prescored line, break the inner control rod

2. At the prescored line, break the outer glass container.

E. Place the broken COLIWASA in a separate plastic bag for later disposal according to SSOP-0035.

6.4.14 Go to Section 6.9.

## 6.5 Sediment/Sludge Sampling with an AMS Sludge Sampler

**SMS Technician**

6.5.1 Consult the PWP for additional personal protective equipment, safety requirements, specific sampling procedure, and sample container requirements.

**CAUTION**

Failure to use clean gloves **AND** decontaminated sampling equipment may result in sample cross-contamination.

6.5.2 Decontaminate sampling equipment according to EP-SMS-003 before collecting each sample.

6.5.3 Prepare sampling point as follows:

**WARNING**

Failure to wear protective gloves **AND** glasses may result in exposure to hazardous or radioactive materials.

A. Put on two sets of clean disposable latex gloves.

**WARNING**

Failure to exercise care while walking on plastic sheeting may increase the possibility of injury from a fall.

B. Place clean plastic sheet (Herculite® or equivalent) adjacent to the sampling location.

6.5.4 Assemble the sludge sampler as follows:

A. Lay the sludge sampler on the clean plastic sheeting.

B. To the threaded end attach one of the following:

1. **IF** collecting a sample where rigid extension rods cannot be used , **THEN** attach a cable adapter and the appropriate length of Teflon-coated cable.

2. For all other sludge sampling, attach the appropriate length of rigid stainless steel extension rods.

6.5.5 Collect sample as follows:

A. **IF** collecting a sample where the Teflon-coated cable and cable adapter are used, **THEN:**

1. Maintain a firm grip on the Teflon-coated cable **AND** provide slack in the cable.

2. Rapidly lower the sampler assembly into the media.

3. Cable slack should be sufficient to allow sampler assembly to gain velocity that permits penetration of media being sampled.

B. **IF NOT** collecting a blind vertically non-linear sample, **THEN:**

1. Maintain a firm grip on the sampler assembly handle/pole.

2. Slowly lower the sampler assembly into the media being sampled.

C. Permit sampler assembly to fill with sample media.

D. Slowly withdraw the sampler assembly.

6.5.6 **IF** collecting sample for VOC analysis, **THEN** transter media from sampler directly into sample container in accordance with Step 6.8.2.

6.5.7 **IF** collecting grab samples for non-VOC analysis, **THEN** transfer media from sampler directly into sample container in accordance with Step 6.8.4.

6.5.8 **IF** collecting a composite sample for non-VOC analysis, **THEN** place media from sampler into a decontaminated stainless steel pan **AND** cover pan with plastic sheeting.

6.5.9 Repeat Step 6.5.5 until sufficient volume of sample media is obtained.

6.5.10 **WHEN** sufficient volume of sample media is collected, **THEN:**

A. Prepare composite sample for non-VOC analysis in accordance with Step 6.8.5.

B. Disassemble sludge sampler.

C. Go to Section 6.9.

## 6.6 Sediment/Sludge Sampling with a Clamshell Bottom Dredge

**SMS Technician**

6.6.1 Consult the PWP for additional personal protective equipment, safety requirements, specific sampling procedure, and sample container requirements.

> **CAUTION**
>
> Failure to use clean gloves AND decontaminated sampling equipment may result in sample cross-contamination.

6.6.2 Decontaminate sampling equipment according to EP-SMS-003 before collecting each sample.

6.6.3 Before boarding the sampling boat, prepare an on-shore collection point as follows:

> **WARNING**
>
> Failure to exercise care while walking on plastic sheeting may increase the possibility of injury from a fall.

A. Place clean plastic sheet (Herculite® or equivalent) at a level location.

B. Place a decontaminated stainless steel pan on the plastic sheet at the on-shore collection point.

> **WARNING**
>
> Failure to use personal flotation device while on the sampling boat could result in personal injury.

6.6.4 Don personal flotation device and other PPE specified in H&SP.

6.6.5 Place these items on board the boat:

A. Clean plastic sheeting

B. Decontaminated stainless steel collection container large enough to accommodate required volume of sample.

C. VOC sample containers (if sampling for VOCs).

D. Wiping (laboratory) tissues.

E. Plastic bag to contain Investigation Derived Wastes.

6.6.6 Carefully board the boat and move to the sampling location.

6.6.7 Locate sample extraction point using an approved and documented method.

**WARNING**

Failure to wear protective gloves AND glasses may result in exposure to hazardous or radioactive materials.

6.6.8 Put on two sets of clean disposable latex gloves.

6.6.9 Attach teflon coated stainless steel retrieval cable with top gripping loop to the decontaminated clamshell sampler.

NOTE: The retrieval cable must accommodate sampling depth plus sufficient above surface length to permit control of device.

6.6.10 Collect sediment/sludge sample as follows:

A. Slowly lower clamshell sampler until it reaches the bottom surface.

B. Maintain a firm grip on the retrieval cable loop and attach the trip weight to the retrieval cable.

C. Drop the trip weight down the retrieval cable, allowing the clamshell sampler to close and entrap bottom sediment inside the sampler.

D. Slowly withdraw the clamshell sampler until it is above the water surface.

E. Carefully lift the clamshell sampler over top the stainless steel collection container.

F. Open the clamshell sampler by pulling the jaws apart and allow the contents to empty into the stainless steel collection container.

G. Immediately transfer sample material for VOC analysis to sample containers in accordance with Step 6.8.2.

H. Immediately cover the sampled media in the stainless steel collection container with a clean plastic bag.

6.6.11 **IF** additional sample media is required from that sample point, **THEN** repeat Step 6.6.10 **UNTIL** sufficient volume of sample media is collected.

6.6.12 **WHEN** sufficient volume of sample media is collected, proceed to:

A. Disassemble the clamshell sampler.

B. Place clamshell sampler components into one or more clean plastic bag(s).

C. Return boat to the on-shore collection point.

6.6.13 Prepare grab samples for containerization for non-VOC analysis in accordance with Step 6.8.4.

6.6.14 Prepare composite sample for non-VOC analyses in accordance with Step 6.8.5.

6.6.15 **IF** collecting samples from other locations, proceed to:

> **CAUTION**
>
> Failure to use clean gloves **AND** decontaminated sampling equipment may result in sample cross-contamination.

A. Decontaminate sampling equipment according to **EP-SMS-003**.

B. Put on two sets of clean disposable latex gloves.

C. Repeat Step 6.6.3 through Step 6.6.12 **UNTIL** all samples are collected.

6.6.16 **WHEN** all samples have been collected, **THEN** go to Step 6.9.

## 6.7 Sediment/Sludge Sampling with a Sludge Judge

**SMS Technician**

6.7.1 Consult the PWP for additional personal protective equipment, safety requirements, specific sampling location and sample container requirements.

> **CAUTION**
>
> Failure to use clean gloves AND clean decontaminated sampling equipment may result in sample cross-contamination.

6.7.2 Decontaminate sampling equipment according to EP-SMS-003 before collecting each sample.

6.7.3 Prepare sample location as follows:

> **WARNING**
>
> Failure to wear protective gloves AND splash protection may result in exposure to a hazardous material.

A. Don two clean sets of disposable latex gloves AND splash protection.

> **WARNING**
>
> Failure to exercise care while walking on plastic sheeting may increase the possibility of injury from a fall.

B. Place clean plastic sheeting (Herculite® or equivalent) at the sampling location.

6.7.4 Consult TSAP for required sampling depth.

6.7.5 On the plastic sheeting, assemble the Sludge Judge as follows:

A. Using 3/4-inch plastic NPT threaded fittings, attach 5-foot segments of clear plastic pipe to the bottom segment of sludge judge.

**NOTE:** The bottom segment has a check valve, the top segment has a nylon rope.

B. Continue attaching segments until sludge judge is of the proper length to reach the bottom of the unit being sampled.

6.7.6 Collect sediment/sludge sample as follows:

A. While maintaining a firm grip on the nylon rope, lower the Sludge Judge assembly into the sample media.

**NOTE:** The check valve at the bottom of the assembly will be open.

B. Allow the pipe to fill with sample media as the assembly is lowered.

C. **WHEN** the Sludge Judge assembly touches bottom, **THEN** tug the rope slightly to close the check valve.

D. Slowly withdraw the assembly from the sample media.

E. Using the one-foot graduation marks on the plastic pipe, determine the height of the media in the unit.

**NOTE:** The height of the media will correspond to the depth to the bottom of the unit.

F. Record the height of the media in Field Logbook.

6.7.7 Keeping all activity confined to area covered by plastic sheeting, distribute sampled media as follows:

A. Place the bottom opening of the Sludge Judge over the sample container **OR** collection container.

B. Allow the check valve to open slowly and release the fluid into the collection container.

6.7.8 **IF** collecting sample for VOC analyses, **THEN** transfer media from sampler directly into sample container in accordance with Step 6.8.2.

6.7.9 **IF** collecting grab samples for non-VOC analyses, **THEN** transfer media directly into sample containers in accordance with Step 6.8.4.

6.7.10 **IF** collecting sample for non-VOC analysis, **THEN** place media from sampler into a decontaminated stainless steel pan **AND** cover pan with plastic sheeting.

6.7.11 **IF** excess media remains in the sampler, **THEN** empty excess media into a plastic bag until sampling event is complete.

6.7.12 Repeat Step 6.7.6 until sufficient volume of sample media from that sampling point is accumulated in the stainless steel pan.

6.7.13 **WHEN** sufficient volume of sample media is collected, **THEN**:

A. Prepare composite sample for non-VOC analyses in accordance with Step 6.8.5.

B. Wipe excess media from the surface of the Sludge Judge.

C. Place soiled wipe in a plastic bag for disposal according to SSOP-0035.

D. Disassemble Sludge Judge.

E. Decontaminate Sludge Judge according to EP-SMS-003, Equipment Decontamination.

6.7.13 Go to Section 6.9.

## 6.8 Sample Preparation

**SMS Technician**

6.8.1 Consult TSAP for sample requirements.

A. **IF** sample required for VOC analysis, **THEN** go to Step 6.8.2.

B. **IF** sample required for non-VOC analysis, **THEN** go to Step 6.8.4.

C. **IF** composite sample required, **THEN** go to Step 6.8.5.

6.8.2 **IF** sample required for VOC analysis, **THEN**:

A. Remove cap from sample container specified in TSAP.

**CAUTION**

Failure to place sediment/sludge for VOC analysis in sample containers quickly, without unnecessary handling of sample media, may increase volatilization and adversely impact sample integrity.

B. Using decontaminated stainless steel scoop, spoon, or trowel extract portions of media from center, intact, undisturbed portions of the extracted sample.

C. **Quickly** place the sample into the sample containers.

**CAUTION**

Failure to fill sample container completely with sediment/sludge for VOC analysis may increase volatilization and adversely impact sample integrity.

D. Fill and lightly compress the media into the sample containers **UNTIL** no voids are evident.

E. Repeat Steps 6.8.2.B through 6.8.2.D **UNTIL** media is even with top of sample container.

F. Replace cap on sample container.

6.8.3 Prepare sample container for transport as follows:

A. Firmly tighten the cap.

B. Using a lint-free wipe, clean external surface of sample container.

C. Initial and date custody tape.

D. Using custody tape, seal the container.

E. Complete AND apply two-part sample labels according to EP-SMS-004.

> **CAUTION**
>
> Failure to follow sample preservation requirements may cause sample degradation and invalidate laboratory-generated data.

F. IF TSAP indicates cooling is required as a preservative, THEN place sample containers in ice chest maintained at 4• C.

G. Complete appropriate field documentation, including the following:

1. Field Logbook, according to EP-SMS-001, including any deviations related to the performance of the sampling round.

2. SWAR/CR, according to SSOP-0018, Processing the Site-Wide Analysis Request/Custody Record for Sample Control.

H. IF excess media remains in the sampling tools or stainless steel pans(s), THEN empty excess media into a plastic bag until sampling event is complete.

I. As soon as possible after sampling event, deliver samples and SWAR/CR forms to FEMP Receiving Lab.

6.8.4 IF sample required for non-VOC analysis, THEN do this:

A. Remove cap from sample containers specified in TSAP.

B. Using the decontaminated stainless steel scoop, spoon, or trowel extract soil sample.

C. Fill sample container.

D. Replace cap on sample container.

E. IF excess media remains in the sampling tools or stainless steel pan(s), THEN empty excess media into a plastic bag until sampling event is complete.

F. Prepare sample for transport according to Step 6.8.3.

6.8.5 IF composite sample required, THEN:

> **NOTE**
>
> **DO NOT** composite samples collected for VOC analysis.

A. Collect a sufficient volume of media to meet TSAP requirements.

B. **WHEN** a sufficient volume of sample has been collected, composite the sample media as follows:

1. Using the stainless steel scoop, divide the entire volume into four relatively even quarters.
2. Mix opposite quarters together.
3. Mix the resulting halves together.
4. Repeat Steps 1 through 3 a second time.

C. Using decontaminated stainless steel scoop, spoon, or trowel empty composited soil sample into the sample containers specified in TSAP.

D. Replace cap on sample container.

E. Prepare sample for transport according to Step 6.8.3.

6.8.6 IF core/tube samples are required, prepare for transport as follows:

A. IF caving material is present, THEN discard this material prior to sealing tube.

B. Using 1" vinyl tape, seal color-coded caps on each end of tube.

C. Using a Nalgene® marker, inscribe on the surface of the liner:

1. Date
2. Project name
3. Sample location

D. Using a Nalgene® marker, measuring device, and cutting instrument, divide, mark and cut the core/liner to the lengths specified in TSAP.

E. Complete appropriate field documentation, including the following:

1. Field Logbook, according to EP-SMS-001, including any deviations related to the performance of the sampling round.

2. SWAR/CR, according to SSOP-0018, Processing the Site-Wide Analysis Request/Custody Record for Sample Control.

F. As soon as possible after sampling event, deliver samples and SWAR/CR forms to FEMP Receiving Lab.

**6.9 Sample Event Completion**

**SMS Technician**

6.9.1 Package and process plastic bag containing excess sample media and other derived waste according to SSOP-0035.

6.9.2 Decontaminate equipment according to EP-SMS-003.

6.9.3 Deliver QC samples according to EP-SMS-002.

6.9.4 Archive samples according to TSAP.

6.9.5 Complete documentation and sampling event according to EP-SMS-004.

**Lead Technician**

6.9.6 Verify sampling event completed according to EP-SMS-004.

6.9.7 Complete Material Evaluation Form (MEF) according to SSOP-0002, Completing the Material Evaluation Form.

**7.0 RECORDS**

7.1 Field Logbook

7.2 Site-Wide Analysis Request/Custody Record for Sample Control, FS-F-3361

7.3 Material Evaluation Form, FS-F-3252

7.4 PWP and TSAP

**8.0 ATTACHMENTS**

None

ENSERCH ENVIRONMENTAL
DETREX STILL - HAZARDOUS WASTE MANAGEMENT UNIT No. 26
CERTIFICATION REPORT

# Item 2 - SMS Sampling Field Logs - Tank Residues

017-28

FERMCO

# FIELD LOGBOOK INDEX

| DATE: | TIME START: | TIME FINISH: | PG 1 of 2 | SWAR/CR FORM NUMBER: |
|---|---|---|---|---|
| 9-16-94 | 0900 | 1130 | | SPL-94-6125 |

| SAMPLE PLAN NUMBER: | FIELD LOG RECORDER: |
|---|---|
| WBS 04.48.01 | M. Grob / T. Smith |

| CUSTOMER NUMBER | SAMPLE POINT | TYPE CODE | MATERIAL CODE | COLLECTION METHOD | SAMPLE DEPTH | TIME | CONTAINER TYPE | NUMBER/ VOLUME | ANL CODE | PRES. CODE |
|---|---|---|---|---|---|---|---|---|---|---|
| 400006 | 044801-002 | LIQUID | M325 | POUR | N/A | 1100 | PLASTIC | 1 / 1L. | 2402 | P11 |
| 400006 | 044801-002 | | | | | 1100 | GLASS AMBER | 1 / 1 Gal. | 2493 | P01 |
| 400006 | 044801-002 | | | | | 1100 | GLASS AMBER | 1 / 1 Gal. | 2081 | P01 |
| 400006 | 044801-002 | | | | | 1100 | GLASS | 2 / 40ml. | 2300 | P01-P04 |
| 400006 | 044801-002 | | | | | 1100 | PLASTIC | 1 / 1L. | 2001 | P11 |
| 400006 | 044801-002 | | | | | 1100 | PLASTIC | 1 / 1L. | 2002 | P11 |
| 400006 | 044801-002 | | | | | 1100 | GLASS | 1 / 40ml. | 2218-2222 | P01 |
| 400006 | 044801-002 | | | | | 1100 | GLASS | 1 / 120ml. | 2005 | P00 |
| 400007 | 044801-002 | LIQUID | M325 | POUR | N/A | 0930 | GLASS | 3 / 40ml. | 2300 | P01-P09 |
| 400007 | 044801-002 | LIQUID | M325 | POUR | N/A | 0930 | GLASS | 1 / 120ml | 2005 | P00 |
| 400008 | 044801-003 | RESIDUE | M316 | COMPOSITE | N/A | 0930 | GLASS | 1 / 250ml. | 2401 | P01 |
| 400008 | 044801-003 | | | | | 1045 | GLASS | 1 / 120 ml. | 2487 | P01 |
| 400008 | 044801-003 | | | | | 1045 | GLASS/AMBER | 1 / 120 ml. | 2471 | P01 |
| 400008 | 044801-003 | | | | | 1045 | GLASS | 1~~2~~ / 120 ml. | 2459 | P01 |
| 400008 | 044801-003 | | | | | 1045 | GLASS | 1 / 120 ml. | 2442 | P00 |
| 400008 | 044801-003 | | | | | 1045 | GLASS | 1 / 120 ml. | 2002 | P00 |
| ~~400008~~ | ~~044801-003~~ | | This SAMPLE IS Good 9-16-94 MLG | | | ~~1045~~ | ~~GLASS~~ | ~~1 / 120 ml.~~ | ~~2218~~ | ~~P01~~ |
| 400008 | 044801-003 | | | | | 1045 | GLASS | 1 / 120ml. | 2005 | P00 |
| 400009 | 044801-003 | RESIDUE | M316 | COMPOSITE | N/A | 1055 | GLASS | 1 / 250 ml. | 2401 | P01 |
| 400009 | 044801-003 | | | | | 1055 | GLASS | 1 / 120 ml. | 2487 | P01 |
| ~~400009~~ | ~~044801-003~~ | | | | | ~~1055~~ | ~~GLASS AMBER~~ | ~~1 / 120 ml.~~ | ~~2471~~ | ~~P01~~ |
| 400009 | 044801-003 | | | | | 1055 | GLASS | 1~~2~~ / 120 ml. | 2459 | P01 |
| ~~400009~~ | ~~044801-003~~ | | | | | ~~1055~~ | ~~GLASS~~ | ~~1 / 120 ml.~~ | ~~2442~~ | ~~P00~~ |
| 400009 | 044801-003 | | | | | 1055 | GLASS | 1 / 120 ml. | 2002 | P00 |
| ~~400009~~ | ~~044801-003~~ | | | | | ~~1055~~ | ~~GLASS~~ | ~~1 / 120 ml.~~ | ~~2218~~ | ~~P01~~ |
| 400009 | 044801-003 | | | | | 1055 | GLASS | 1 / 120 ml. | 2005 | P00 |

NOTHING FOLLOWS

TYPE CODES: S=Sample Re=Resample D=Duplicate F=Field Blank T=Trip Blank Ri=Rinsate EB=Equipment B

| FIELD SCREENING INSTRUMENT TYPE | SERIAL NUMBER | CALIBRATION DATE | CALIBRATION METHOD | CALIBRATIC READING |
|---|---|---|---|---|
| | | | | |
| | | | | |

000237

FEMPO

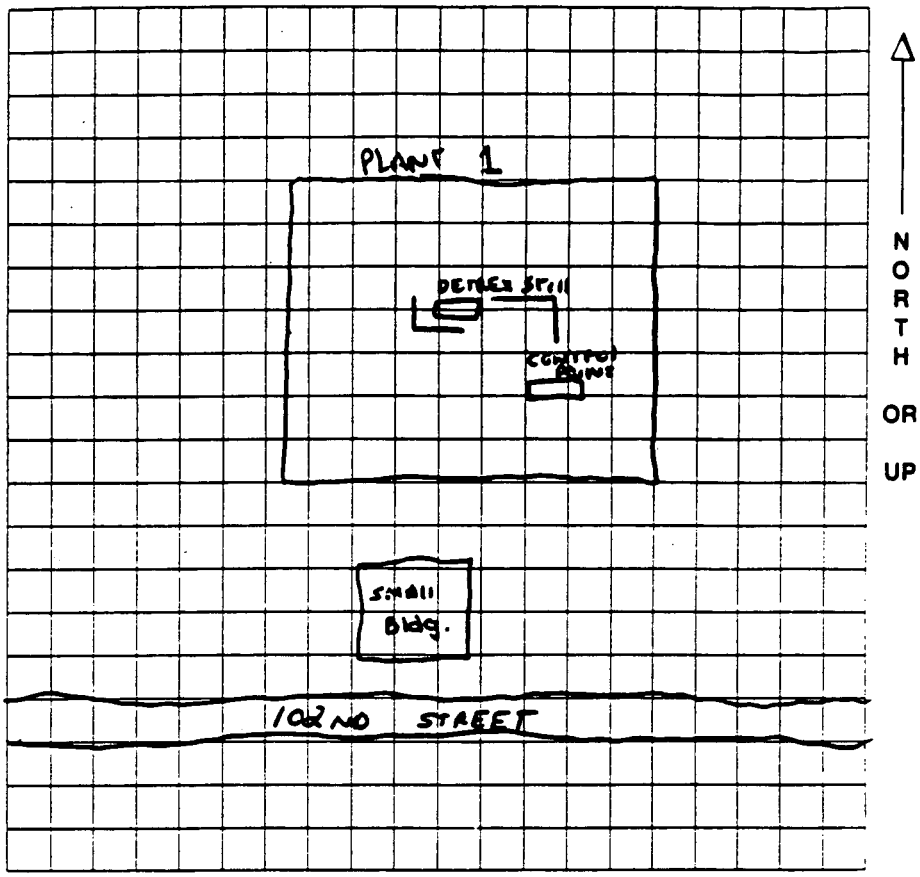
017-29

# FIELD LOGBOOK INDEX

| DATE: 9-16-94 | PG 2 of 2 |
|---|---|
| TIME START 0900 | TIME FINISH: 1130 |

FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT CORPORATION
7400 Willey Road
Fernald, OH 45030

PROJECT NAME: DETTEX Still Closure
SAMPLE PLAN NO.: WBS 04.48.01
LOCATION: PLANT 1
PROJECT FIELD CONTACT/EXT.: M. Morse 738-0003
PROCESS PRODUCING WASTE: Uranium Metals Production
PURPOSE OF SAMPLING: Site Media Sampling
FIELD LOGBOOK RECORDER: M. Grob / T. Smith
SWAR/CR FORM NUMBER: SPL-94-6125




FIELD SKETCH

## FIELD NOTES

Procedure Book was reviewed before sampling.
Sample Point 400009 is a dup of 400008.
There was no liquid in still.
Material in still was brownish / black and all most rock like, with a little bit of tar.
Could not get enough material to complete dup set.
Took all samples that I could get material

| SAMPLER'S NAME (Print) [redacted] | SAMPLER'S SIGNATURE [redacted] 8939 |
|---|---|
| SAMPLER'S NAME (Print) [redacted] | SAMPLER'S SIGNATURE [redacted] 10165 |
| SAMPLER'S NAME (Print) | |
| SAMPLER'S NAME (Print) | SAMPLER'S SIGNATURE |

# Item 3 - SMS Chain of Custody - Tank Residues

FEMP
RSO - ANALYTICAL

Form Number: SA 94-6125

# SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD

Page 1 of 4

PROJECT: DETREX STILL CLOSURE

☐ PLAN NO.: OR ☒ PROJECT NO.: 04.48.01

PROJECT MANAGER/ENGINEER: D. BEHEIER

FOR SAMPLE RELATED PROBLEMS, CONTACT:
ORGANIZATION: FIELD OPERATIONS
NAME: M. MORSE PHONE: 8482

SAMPLER: [redacted] PHONE: 9381

CHARGE NUMBER: 3BSU3 LOT MARKING CODE: N/A

SAMPLER SIGNATURE(S): [redacted]

SEND RESULTS [redacted]

SAMPLER REMARKS:

MLG 9-16-94 MLG 9-19-94 Rel # 1000003975

CHECK FOR: ☒ S R LAB ☐ BIO LAB ☐ WTP LAB

SAMPLE SOURCE, DESCRIPTION/IDENTIFICATION, ANALYSIS REGIMEN

| ITEM NO. | SAMPLE NUMBER | CUSTOMER NUMBER | SAMPLE POINT | MATRIX CODE | COLLECTED DATE | COLLECTED TIME | CONTAINER/ VOLUME | COMPOSITE | GRAB | NO. OF CONTAINERS | 2402-U02-P11 | 2493-U06-P01 | 2081-U02-P01 | 2500-U03-P01-A09 | 2001-[illegible] P11 U02 | 2002-[illegible] P11 U02 | 2219-2222-U06-P01 | 2005-U18-P00 | | | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 20093963 | 400006 | 044801-002 | M325 | 9-16-94 | 1100 | PLASTIC 1L. | | X | 1 | X | | | | | | | | | | | | | < .15% wt |
| 2 | 20093964 | 400006 | 044801-002 | M325 | 9-16-94 | 1100 | GLASS AMBER 1Gal | | X | 1 | | X | | | | | | | | | | | | |
| 3 | 20093965 | 400006 | 044801-002 | M325 | 9-16-94 | 1100 | GLASS AMBER 1Gal. | | X | 1 | | | X | | | | | | | | | | | |
| 4 | 20093966 | 400006 | 044801-002 | M325 | 9-16-94 | 1100 | GLASS 40ml | | X | 1 MLG 9-19-94 | | | | X | | | | | | | | | | |
| 5 | 20093967 | 400006 | 044801-002 | M325 | 9-16-94 | 1100 | PLASTIC 1L. | | X | 1 | | | | | X | | | | | | | | | < .15% wt |
| 6 | 20093968 | 400006 | 044801-002 | M325 | 9-16-94 | 1100 | PLASTIC 1L. | | X | 1 | | | | | | X | | | | | | | | < .15% wt |
| 7 | 20093969 | 400006 | 044801-002 | M325 | 9-16-94 | 1100 | GLASS 40ml | | X | 1 | | | | | | | X | | | | | | | |
| 8 | 20093970 | 400006 | 044801-002 | M325 | 9-16-94 | 1100 | GLASS 120ml | | X | 1 | | | | | | | | X | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | |

NOTHING FOLLOWS MLG

NOTHING FOLLOWS MLG

| ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME | ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME |
|---|---|---|---|---|---|---|---|---|---|
| 1-B/ All Process | Mike Morse | [illegible] | 9/16/94 | 1430 | | | | | |

| NO. | DISTRIBUTION OF COPIES |
|---|---|
| 1 | LABORATORY |
| 2 | REQUESTER |
| 3 | SAMPLER |

FS-F-3361 (REV 3/25/93)

00024

00024

FEMP
RSO - ANALYTICAL

# SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD

Form Number: SPL-94-6125



PROJECT: DETTEX STILL CLOSURE

☐ PLAN NO.: OR ☒ PROJECT NO.: 04.48.01

PROJECT MANAGER/ENGINEER: D. BEHELER

FOR SAMPLE RELATED PROBLEMS, CONTACT:

ORGANIZATION: FIELD OPERATIONS

NAME: M. MORSE PHONE: 8482

SAMPLER: [redacted] PHONE: 9381

SAMPLER REMARKS:

CHARGE NUMBER: 3BSU3 LOT MARKING CODE: N/A [redacted]

SAMPLER SIGNATURE(S): [redacted] 8939 [redacted] 8165

SEND RESULTS TO: [redacted] 6634 / [redacted] 8482 Rel # 1000003975

CHECK FOR: ☒ S R LAB ☐ BIO LAB ☐ WTP LAB

SAMPLE SOURCE, DESCRIPTION/IDENTIFICATION, ANALYSIS REGIMEN

| ITEM NO. | SAMPLE NUMBER | CUSTOMER NUMBER | SAMPLE POINT | MATRIX CODE | COLLECTED DATE | COLLECTED TIME | CONTAINER/ VOLUME | COMPOSITE | GRAB | NO. OF CONTAINERS | 2300-U02-P01-P09 | 2005-U18-P00 | ANALYTES CODE - (UNITS CODE) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 200093997 | 400007 | 044801-002 | M325 | 9-16-94 | 0930 | GLASS 40ml | | X | 1 | X | | | < .04% WT |
| 2 | 200093998 | 400007 | 044801-002 | M325 | 9-16-94 | 0930 | GLASS 120ml | | X | 1 | | X | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |

NOTHING FOLLOWS MLG

NOTHING FOLLOWS MLG

| ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME |
|---|---|---|---|---|
| 1-2 / All Process | [signature] | [signature] | 9/16/94 | 1430 |

| ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME |
|---|---|---|---|---|
| | | | | |

| NO. | DISTRIBUTION OF COPIES |
|---|---|
| 1 | LABORATORY |

# SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD



PROJECT: Detrex Still Closure

☐ PLAN NO.: OR ☐ PROJECT NO.: 04.48.01

PROJECT MANAGER/ENGINEER: Don Beheler

FOR SAMPLE RELATED PROBLEMS, CONTACT:

ORGANIZATION: Field Operations

NAME: M. Morse PHONE: 8482

SAMPLER: N. Grob / T. SMITH PHONE: 9381

CHARGE NUMBER: 3B5103 LOT MARKING CODE: N/A

SAMPLER SIGNATURE(S [redacted] 8939/ [redacted] 465

SEND RESULTS TO: [redacted] 606034 [redacted] 8482

SAMPLER REMARKS: ASL B

All SAMPLES < MDA

CHECK FOR: ☒ S R LAB ☐ BIO LAB ☐ WTP LAB

SAMPLE SOURCE, DESCRIPTION/IDENTIFICATION, ANALYSIS REGIMEN

| ITEM NO. | SAMPLE NUMBER | CUSTOMER NUMBER | SAMPLE POINT | MATRIX CODE | COLLECTED DATE | COLLECTED TIME | CONTAINER/ VOLUME | COMPOSITE | GRAB | NO. OF CONTAINERS | 2401 101 407 | 2447 101 407 | 2447 101 407 | 2459 101 407 | 2412 101 407 | 202 407 | 2222-8122 101 407 | 2005 119 200 | | | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 20009399 | 400008 | 044801-003 | M316 | 9-16-94 | 1045 | 6t/250mL | X | | 1 | X | | | | | | | | | | | | | |
| 2 | 20009400 | 400008 | 044801-003 | M316 | 9-16-94 | 1045 | 6t/120mL | X | | 1 | | X | | | | | | | | | | | | |
| 3 | 20009401 | 400008 | 044801-003 | M316 | 9-16-94 | 1045 | AMBER 6t/120mL | X | | 1 | | | X | | | | | | | | | | | |
| 4 | 20009402 | 400008 | 044801-003 | M316 | 9-16-94 | 1045 | 6t/120mL | X | | 1 | | | | X | | | | | | | | | | |
| 5 | 20009403 | 400008 | 044801-003 | M316 | 9-16-94 | 1045 | 6t/120mL | X | | 1 | | | | | X | | | | | | | | | |
| 6 | 20009404 | 400008 | 044801-003 | M316 | 9-16-94 | 1045 | 6t/120mL | X | | 1 | | | | | | X | | | | | | | | |
| 7 | 20009405 | 400008 | 044801-003 | M316 | 9-16-94 | 1045 | 6t/120mL | X | | 1 | | | | | | | X | | | | | | | |
| 8 | 20009406 | 400008 | 044801-003 | M316 | 9-16-94 | 1045 | 6t/120mL | X | | 1 | | | | | | | | X | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | |

nothing Follows KSR 9-12-94

| ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME |
|---|---|---|---|---|
| 1-81 All Process | [signature] | [signature] | 9/16/94 | 1430 |

| ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME |
|---|---|---|---|---|
| | | | | |

| NO. | DISTRIBUTION OF COPIES |
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| 2 | REQUESTER |
| 3 | SAMPLER |

ES F 201 (REV 3/25/93)

00024

00721

FEMP
RSO - ANALYTICAL

# SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD

Form Number: SPL-94-6125

Page 4 of 4

PROJECT: Detrex Still closure

☐ PLAN NO.: OR ☐ PROJECT NO.: 04.48.01

PROJECT MANAGER/ENGINEER: Don Behelar

SAMPLER: [redacted] PHONE: 9381

CHARGE NUMBER: 3B5U3 LOT BILLING CODE: N/A

SAMPLER SIGNATURE([redacted] 8939 [redacted] 10165

SEND RESULTS TO [redacted] 6634/[redacted] 482

FOR SAMPLE RELATED PROBLEMS, CONTACT:

ORGANIZATION: Field Operations

NAME: M. Morse PHONE: 8482

SAMPLER REMARKS: ASL B

All SAMPLES < MDA

REL # 1000003975

CHECK FOR: ☐ S R LAB ☐ BIO LAB ☐ WTP LAB

SAMPLE SOURCE, DESCRIPTION/IDENTIFICATION, ANALYSIS REGIMEN

| ITEM NO. | SAMPLE NUMBER | CUSTOMER NUMBER | SAMPLE POINT | MATRIX CODE | COLLECTED DATE | COLLECTED TIME | CONTAINER/ VOLUME | COMPOSITE | GRAB | NO. OF CONTAINERS | 2401 100 | 2487 100 | 2471 100 | 2459 100 | 2472 100 | 2003 100 | 2222-B 100 | 1082 100 | 2000 100 | 419 100 | KSR 9-12-94 | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 200094007 | 400009 | 044801-003 | M316 | 9-16-94 | 1055 | Gt/250mL | X | | 1 | X | | | | | | | | | | Nothing Follows | |
| 2 | 200094008 | 400009 | 044801-003 | M316 | 9-16-94 | 1055 | Gt/120mL | X | | 1 | | X | | | | | | | | | | |
| 3 | ~~200094009~~ | ~~400009~~ | ~~044801-003~~ | ~~M16~~ | ~~9-16-94~~ | | ~~Amber/~~ | ~~X~~ | | ~~1~~ | | | | | | | | | | | | |
| 4 | 200094010 | 400009 | 044801-003 | M316 | 9-16-94 | 1055 | Gt/120mL | X | | 1 | | | X | | | | | | | | | |
| 5 | ~~200094011~~ | ~~400009~~ | ~~044801-003~~ | | ~~MLG 9-16-94~~ | | ~~Gt/120mL~~ | ~~X~~ | | ~~1~~ | | | | X | | | | | | | | |
| 6 | 200094012 | 400009 | 044801-003 | M316 | 9-16-94 | 1055 | Gt/120mL | X | | 1 | | | | | X | | | | | | | |
| 7 | ~~200094013~~ | ~~400009~~ | ~~044801-003~~ | | ~~MLG 9-16-94~~ | | ~~Gt/120mL~~ | ~~X~~ | | ~~1~~ | | | | | | X | | | | | | |
| 8 | 200094014 | 400009 | 044801-003 | M316 | 9-16-94 | 1055 | Gt/120mL | X | | 1 | | | | | | | X | | | | | |
| 9 | | | | | | | | | | | | | | | | | | X | | | | |
| 10 | | | | Nothing Follows | | | KSR | 9-12-94 | | | | | | | | | | | | | | |

MLG 9-16-94

| ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME |
|---|---|---|---|---|
| 1,2,4,6,8/All Process | [signature] | [signature] | 9/16/94 | 1430 |

| ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME |
|---|---|---|---|---|
| | | | | |

| NO. | DISTRIBUTION OF COPIES |
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ENSERCH ENVIRONMENTAL
DETREX STILL - HAZARDOUS WASTE MANAGEMENT UNIT No. 26
CERTIFICATION REPORT

# Item 4 - SMS Sampling Field Logs - Scabbled Concrete

017-32

# FIELD LOGBOOK INDEX

| DATE | TIME START: | TIME FINISH: | PG 1 of 4 | SWAR/CR FORM NUMBER: |
|---|---|---|---|---|
| 9/26/94 | 0900 | 1000 | | SPL-94-6209 |

| SAMPLE PLAN NUMBER: | FIELD LOG RECORDER: |
|---|---|
| 04.48.01 | M. Grob |

| CUSTOMER NUMBER | SAMPLE POINT | TYPE CODE | MATERIAL CODE | COLLECTION METHOD | SAMPLE DEPTH | TIME | CONTAINER TYPE | NUMBER/ VOLUME | ANL CODE | PRES. CODE | UNIT CODE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4801-001 | 400002 | LIQUID | M325 | POUR | N/A | 0925 | GLASS | 2/ 40ML. | 2300 | P01, P09 | U02 |
| | | | | | | | GLASS | 1/ 40ML. | 2218-2222 | P01 | U06 |
| | | | | | | | GLASS | 1/ 120ML. | 2005 | P00 | U18 |
| | | | | | | | Poly | 1/ 1L | 2402 | P11 | U02 |
| | | | | | | | Poly | 1/ 1L | 2001 | P11 | U06 |
| | | | | | | | Poly | 1/ 1L | 2002 | P11 | U06 |
| | | | | | | | AMBER GLASS | 1/ 1 GAL | 2493 | P11 | U06 |
| | | | | | | | AMBER GLASS | 1/ 1 GAL | 2081 | P01 | U02 |
| 4801-001 | 400003 | LIQUID | M325 | POUR | N/A | 0800 | GLASS | 3/ 40ML. | 2300 | P01, P09 | U02 |
| 4801-001 | 400003 | LIQUID | M325 | POUR | N/A | 0800 | GLASS | 1/ 120ML. | 2005 | P00 | U18 |
| 4801-002 | 400004 | CONCRETE | M305 | Grab | N/A | 0910 | GLASS | 1/ 120ML | 2487 | P01 | U02 |
| | | | | | | | | 1/ 120ML | 2471 | P01 | U02 |
| | | | | | | | | 3/ 120ML | 2459 | P01 | U04 |
| | | | | | | | | 1/ 120ML | 2442 | P00 | U07 |
| | | | | | | | | 1/ 120ML | 2002 | P00 | U07 |
| | | | | | | | | 1/ 120ML | 2218-2222 | P01 | U08 |
| | | | | | | | | 1/ 120ML | 2048 | P01 | U04 |
| | | | | | | | | 1/ 120ML | 1063 | P01 | U19 |
| | | | | | | | | 1/ 120ML | 1063 | P01 | U19 |
| | | | | | | | | 1/ 120ML | 2000 | PFLT P00 | U35 |
| | | | | | | | | 1/ 120ML | 1063 | P00 | U19 |
| | | | | | | | | 1/ 120ML | 2005 | P00 | U19 |
| | | | | | | | | 1/ 250ML | 2401 | P01 | U02 |
| 4801-002 | 400005 | CONCRETE | M305 | Grab | N/A | 0920 | GLASS | 1/ 120ML | 2487 | P01 | U02 |
| | | | | | | | | 1/ 120ML | 2471 | P01 | U02 |
| | | | | | | | | 3/ 120ML | 2459 | P01 | U04 |
| | | | | | | | | 1/ 120ML | 2442 | P00 | U07 |
| | | | | | | | | 1/ 120ML | 2002 | P00 | U07 |

TYPE CODES: S=Sample Re=Resample D=Duplicate F=Field Blank T=Trip Blank RI=Rinsate EB=Equipment Blank

| FIELD SCREENING INSTRUMENT TYPE | SERIAL NUMBER | CALIBRATION DATE | CALIBRATION METHOD | CALIBRATION READING |
|---|---|---|---|---|
| | | | | |
| | | | | |



REORDER FROM REYNOLDS • REYNOLDS 513-771-8654

# FIELD LOGBOOK INDEX

| DATE: 9/26/94 | PG 2 of 4 |
|---|---|
| TIME START: 0900 | TIME FINISH: 1000 |

**FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT CORPORATION**
7400 Willey Road
Fernald, OH 45030

PROJECT NAME: DERREX STILL II

SAMPLE PLAN NO.: 04.48.01

LOCATION: PLANT 1

PROJECT FIELD CONTACT/EXT.: M. MORSE 738-0003

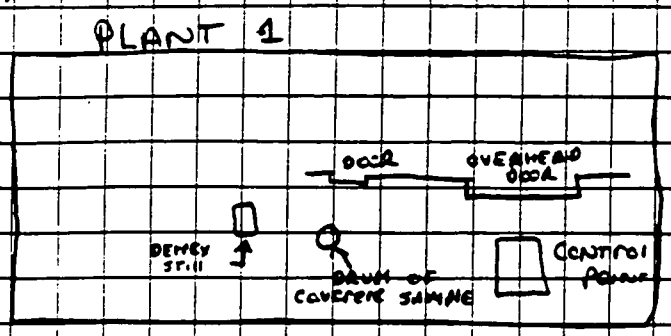
PROCESS PRODUCING WASTE: Uranium Metals Production

PURPOSE OF SAMPLING: Site Media Sampling

FIELD LOGBOOK RECORDER: M. Grob

SWAR/CR FORM NUMBER: SPL-94-6209

| UNIT CODE |
|---|
| U02 |
| U06 |
| U18 |
| U02 |
| U06 |
| U06 |
| U06 |
| U02 |
| U02 |
| U18 |
| U02 |
| U02 |
| U04 |
| U07 |
| U07 |
| U08 |
| U04 |
| U19 |
| U19 |
| U35 |
| U19 |
| U19 |
| U02 |
| U02 |
| U02 |
| U04 |
| U07 |
| U07 |




FIELD SKETCH

## FIELD NOTES

MATERIAL WAS SAMPLED FROM A DRUM.
ROBIN HENRY OF QA PERFORMED AN AUDIT ON SAMPLING.
1063 IS FOR THREE ANL'S. 1. REACTIVE HYDROGEN CYANIDE
2. REACTIVE HYDROGEN SULFIDE
3. GAMMA SPECTRAL ANALYSIS

SAMPLER'S NAME (Print) [redacted] SAMPLER'S SIGNATURE [redacted]

SAMPLER'S NAME (Print) [redacted] X 9351 SAMPLER'S SIGNATURE [redacted] 5939

SAMPLER'S NAME (Print) SAMPLER'S SIGNATURE

SAMPLER'S NAME (Print) SAMPLER'S SIGNATURE

000246

REORDER FROM REYNOLDS + REYNOLDS 513-771-8654

017-34

# FIELD LOGBOOK INDEX

| DATE | TIME START | TIME FINISH | PG 3 of 4 | SWAR/CR FORM NUMBER |
|---|---|---|---|---|
| 9/26/94 | 0900 | 1000 | | SPL-94-6209 |

| SAMPLE PLAN NUMBER | FIELD LOG RECORDER |
|---|---|
| 04.48.01 | M. Grob |

| CUSTOMER NUMBER | SAMPLE POINT | TYPE CODE | MATERIAL CODE | COLLECTION METHOD | SAMPLE DEPTH | TIME | CONTAINER TYPE | NUMBER/ VOLUME | ANL CODE | PRES. CODE | UNIT CODE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 044BC1-001 | 400005 | CONCRETE | M305 | Grab | N/A | 0920 | GLASS | 1/120 ml. | 2218-2222 | P01 | U08 |
| | | | | | | | | 1/120 ml. | 2048 | P01 | U04 |
| | | | | | | | | 1/120 ml. | 1063 | P01 | U19 |
| | | | | | | | | 1/120 ml. | 1063 | P01 | U19 |
| | | | | | | | | 1/120 ml. | 2000 | P00 | U35 |
| | | | | | | | | 1/120 ml. | 2007 | P00 | U19 |
| | | | | | | | | 1/120 ml. | 2005 | P00 | U19 |
| | | | | | | | | 1/120 ml. | 2401 | P01 | U02 |

NOTHING FOLLOWS MLG 9-26-94

TYPE CODES: S=Sample Re=Resample D=Duplicate F=Field Blank T=Trip Blank Ri=Rinsate EB=Equipment Blank

| FIELD SCREENING INSTRUMENT TYPE | SERIAL NUMBER | CALIBRATION DATE | CALIBRATION METHOD | CALIBRATION READING |
|---|---|---|---|---|
| | | | | |



REORDER FROM REYNOLDS • REYNOLDS 513-771-8654

F[redacted]O

017-3

# FIELD LOGBOOK INDEX

| DATE: 9/26/94 | PG 4 of 4 |
|---|---|
| TIME START: 0900 | TIME FINISH: 1000 |

**FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT CORPORATION**
7400 Willey Road
Fernald, OH 45030

UNIT CODE
008
004
019
019
035
019
019
002

PROJECT NAME: DETTEY STILL II

SAMPLE PLAN NO.: 04.48.01

LOCATION: PLANT 2

PROJECT FIELD CONTACT/EXT.: M. NORSE 738-0003

PROCESS PRODUCING WASTE: Uranium Metals Production

PURPOSE OF SAMPLING: Site Media Sampling

FIELD LOGBOOK RECORDER: M. Grob

SWAR/CR FORM NUMBER: SPL-94-6209

SEE PAGE 2 OF 2

FIELD SKETCH

FIELD NOTES

SEE NOTES ON PAGE 2 of 2

SAMPLER'S NAME (Print) [redacted] Y9381 | SAMPLER'S SIGNATURE [redacted] 8939

SAMPLER'S NAME (Print) | SAMPLER'S SIGNATURE

SAMPLER'S NAME (Print) | SAMPLER'S SIGNATURE

SAMPLER'S NAME (Print) | SAMPLER'S SIGNATURE

000248

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ENSERCH ENVIRONMENTAL
DETREX STILL - HAZARDOUS WASTE MANAGEMENT UNIT No. 26
CERTIFICATION REPORT

# Item 5 - SMS Chain of Custody - Scabbled Concrete

RSO - ANALYTICAL

# SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD



PROJECT: DETREX STILL

☐ PLAN NO.: N/A OR ☒ PROJECT NO.: 04.48.01

PROJECT MANAGER/ENGINEER: D. BEHELER

[redacted] PHONE: 9381

CHARGE NUMBER: 38[redacted] LOT MARKING: N/A

SAMPLER SIGNATURE(S): [redacted] 89[redacted] 10165

SEND RESULTS TO: [redacted] /[redacted]

FOR SAMPLE RELATED PROBLEMS, CONTACT:

ORGANIZATION: FIELD OPERATION

NAME: M. MORSE PHONE: 738-0003

SAMPLER REMARKS: ALL SAMPLES ARE ASL LEVEL B.

Rel# 1000004052

CHECK FOR: ☒ S R LAB ☐ BIO LAB ☐ WTP LAB

SAMPLE SOURCE, DESCRIPTION/IDENTIFICATION, ANALYSIS REGIMEN

| ITEM NO. | SAMPLE NUMBER | CUSTOMER NUMBER | SAMPLE POINT | MATRIX CODE | COLLECTED DATE | COLLECTED TIME | CONTAINER/ VOLUME | COMPOSITE | GRAB | NO. OF CONTAINERS | 2300-VC4-P01-P09 | 3218-2222-LOL-P01 | 2005-UI8-P00 | 2462-VC2-P11 | 2001-VC4-P11 | 2002-VC4-P11 | 2493-VC6-P11 | 2081-VC2-P01 | | | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 200093930 | 044801-001 | 400002 | M325 | 9/26/94 | 0925 | GLASS 40 ML. | | X | 2 | X | | | | | | | | | | | | | < .04% WT |
| 2 | 200093933 | 044801-001 | 400002 | M325 | 9/26/94 | 0925 | GLASS 40 ML. | | X | 1 | | X | | | | | | | | | | | | |
| 3 | 200093934 | 044801-001 | 400002 | M325 | 9/26/94 | 0925 | GLASS 120 ML. | | X | 1 | | | X | | | | | | | | | | | |
| 4 | 200093927 | 044801-001 | 400002 | M325 | 9/26/94 | 0925 | POLY 1 L | | X | 1 | | | | X | | | | | | | | | | < .15% WT |
| 5 | 200093931 | 044801-001 | 400002 | M325 | 9/26/94 | 0925 | POLY 1 L | | X | 1 | | | | | X | | | | | | | | | < .15% WT |
| 6 | 200093932 | 044801-001 | 400002 | M325 | 9/26/94 | 0925 | POLY 1 L | | X | 1 | | | | | | X | | | | | | | | < .15% WT |
| 7 | 200093928 | 044801-001 | 400002 | M325 | 9/26/94 | 0925 | AMBER GLASS 1 GAL. | | X | 1 | | | | | | | X | | | | | | | < .15% WT |
| 8 | 200093929 | 044801-001 | 400002 | M325 | 9/26/94 | 0925 | AMBER GLASS 1 GAL. | | X | 1 | | | | | | | | X | | | | | | |
| 9 | | | | NOTHING FOLLOWS MLG 9-21-94 | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | |

| ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME | ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME |
|---|---|---|---|---|---|---|---|---|---|
| 1-81 ALL PROCESS | [illegible] | Paul McKinzie | 9/26/94 | 11:05 | | | | | |

| NO. | DISTRIBUTION OF COPIES |
|---|---|
| 1 | LABORATORY |
| 2 | REQUESTER |
| 3 | SAMPLER |

TS F-3361 (REV 3/25/93)

0002250

0072211

FEMP
RSO - ANALYTICAL

Form Number: SPL - 94 - 6209

# SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD



PROJECT: DETREX STILL

☐ PLAN NO.: N/A OR ☒ PROJECT NO.: 04.48.01

PROJECT MANAGER/ENGINEER: D. BEHELER

FOR SAMPLE RELATED PROBLEMS, CONTACT:

ORGANIZATION: FIELD OPERATIONS

NAME: M. MORSE PHONE: 738-0003

SAMPLER: M. Grob / T. Smith PHONE: 9381

SAMPLER REMARKS: All samples are ASL level B.

CHARGE NUMBER: 38[redacted] LOT MARKING: N[redacted]

SAMPLER SIGNATURE(S): [redacted] 8939/[redacted] Willis

Rel # 1000004052

SEND RESULTS TO: [redacted]

CHECK FOR: ☒ S R LAB ☐ BIO LAB ☐ WTP LAB

SAMPLE SOURCE, DESCRIPTION/IDENTIFICATION, ANALYSIS REGIMEN

| ITEM NO. | SAMPLE NUMBER | CUSTOMER NUMBER | SAMPLE POINT | MATRIX CODE | COLLECTED DATE | COLLECTED TIME | CONTAINER/ VOLUME | COMPOSITE | GRAB | NO. OF CONTAINERS | 2300-VOC-001-009 | 2605-LAB-PCB | | | | | | | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 20009393[illegible] | 044801-001 | 400003 | M325 | 09/26/94 | 0800 | GLASS 40 ml. | | X | 2 | X | | | | | | | | | | | < .04% WT |
| 2 | 20009393[illegible] | 044801-001 | 400003 | M325 | 9/26/94 | 0800 | Poly 120 ml. | | X | 1 | | X | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | |
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| 10 | | | | | | | | | | | | | | | | | | | | | | |

NOTHING FOLLOWS MLG 9-21-94

NOTHING FOLLOWS MLG 9-21-94

| ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME | ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME |
|---|---|---|---|---|---|---|---|---|---|
| 1-2/ All Process | [illegible] | Paul McLurgin | 9/26/94 | 11:05 | | | | | |
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| NO. | DISTRIBUTION OF COPIES |
|---|---|
| 1 | LABORATORY |

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RSO - ANALYTICAL

Form Number SPL . 94 . 6209

# SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD



PROJECT: DETREX STILL

☐ PLAN NO.: N/A OR ☒ PROJECT NO.: 04.48.01

PROJECT MANAGER/ENGINEER: D. BEHELER

FOR SAMPLE RELATED PROBLEMS, CONTACT:
ORGANIZATION: FIELD OPERATIONS
NAME: M. MORSE PHONE: 738-0003

SAMPLER: M. Grob / T. SMITH PHONE: 9381

CHARGE NUMBER: 38503 LOT MARKING CODE: N/A

SAMPLER SIGNATURE(S): [redacted] 8939 / [redacted] 10165

SEND RESULTS TO: [redacted] / [redacted]

SAMPLER REMARKS: All samples are ASL level B.
* Do pH if PFLT fails

Rel # 1000004052

CHECK FOR: ☒ S R LAB ☐ BIO LAB ☐ WTP LAB

SAMPLE SOURCE, DESCRIPTION/IDENTIFICATION, ANALYSIS REGIMEN

| ITEM NO. | SAMPLE NUMBER | CUSTOMER NUMBER | SAMPLE POINT | MATRIX CODE | COLLECTED DATE | COLLECTED TIME | CONTAINER/ VOLUME | COMPOSITE | GRAB | NO. OF CONTAINERS | 2487-UC2-P01 | 2471-U02-P01 | 2459-U04-P01 | 2442-U07-P00 | 2002-U07-P00 | 2218-2222-W08-P01 | 2048-UC4-P01 | 1663-U19-P01 | 1063-U19-P01 | 2002-U35 | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 200093938 | 044801-002 | 400004 | M305 | 9/26/94 | 0910 | GLASS 120ml | X | | 1 | X | | | | | | | | | | | | | |
| 2 | 200093939 | 044801-002 | 400004 | M305 | 9/26/94 | 0910 | GLASS 120ml | X | | 1 | | X | | | | | | | | | | | | |
| 3 | 200093940 | 044801-002 | 400004 | M305 | 9/26/94 | 0910 | GLASS 120ml | X | | 3 | | | X | | | | | | | | | | | |
| 4 | 200093941 | 044801-002 | 400004 | M305 | 9/26/94 | 0910 | GLASS 120ml | X | | 1 | | | | X | | | | | | | | | | |
| 5 | 200093942 | 044801-002 | 400004 | M305 | 9/26/94 | 0910 | GLASS 120ml | X | | 1 | | | | | X | | | | | | | | | |
| 6 | 200093943 | 044801-002 | 400004 | M305 | 9/26/94 | 0910 | GLASS 120ml | X | | 1 | | | | | | X | | | | | | | | |
| 7 | 200093944 | 044801-002 | 400004 | M305 | 9/26/94 | 0910 | GLASS 120ml | X | | 1 | | | | | | | X | | | | | | | |
| 8 | 200093945 | 044801-002 | 400004 | M305 | 9/26/94 | 0910 | GLASS 120ml | X | | 1 | | | | | | | | X | | | | | | REACTIVE HYDROGEN CYANIDE |
| 9 | 200093946 | 044801-002 | 400004 | M305 | 9/26/94 | 0910 | GLASS 120ml | X | | 1 | | | | | | | | | X | | | | | REACTIVE HYDROGEN SULFIDE |
| 10 | 200093947 | 044801-002 | 400004 | M305 | 9/26/94 | 0910 | GLASS 120ml | X | | 1 | | | | | | | | | | X | | | | PFLT PH* |

MORNING FOLLOWS MLG 9-27-94

| ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME |
|---|---|---|---|---|
| 1-10 / All Process | Mike Grob | Paul McDurgan | 9/26/94 | 1105 |

| ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME |
|---|---|---|---|---|
| | | | | |

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| 3 | SAMPLER |

F-3361 (REV 3/25/93)

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FEMP
RSO - ANALYTICAL

# SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD

Form Number: SPL - 94 - 6209



PROJECT: DETREX STILL

☐ PLAN NO.: N/A OR ☒ PROJECT NO.: 04.48.01

PROJECT MANAGER/ENGINEER: D. BEHEIER

FOR SAMPLE RELATED PROBLEMS, CONTACT:

ORGANIZATION: FIELD OPERATION

NAME: M. MORSE

PHONE: 738-0003

SAMPLER: [redacted]

PHONE: 9381

SAMPLER REMARKS: ALL SAMPLES ARE ASL LEVEL B

CHARGE NUMBER: 38[redacted]

LOT MARKING: N/A

SAMPLER SIGNATURE(S): [redacted] 8939 / [redacted] 10165

Rel # 1000004052

SEND RESULTS TO: [redacted] / [redacted]

CHECK FOR: ☒ S R LAB ☐ BIO LAB ☐ WTP LAB

SAMPLE SOURCE, DESCRIPTION/IDENTIFICATION, ANALYSIS REGIMEN

| ITEM NO. | SAMPLE NUMBER | CUSTOMER NUMBER | SAMPLE POINT | MATRIX CODE | COLLECTED DATE | COLLECTED TIME | CONTAINER/ VOLUME | COMPOSITE | GRAB | NO. OF CONTAINERS | 1063-U19-800 | 2005-U19-800 | 2401-U92-801 | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 20093948 | 044B01-002 | 400004 | M305 | 9/26/94 | 0910 | GLASS 120ML | X | | 1 | X | | | GAMMA SPECTRAL ANALYSIS |
| 2 | 20093949 | 044B01-002 | 400004 | M305 | 9/26/94 | 0910 | GLASS 120ML | X | | 1 | | X | | |
| 3 | 20093937 | 044B01-002 | 400004 | M305 | 9/26/94 | 0910 | GLASS 250ML | X | | 1 | | | X | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |

NOTHING FOLLOWS MLG 9-21-94

NOTHING FOLLOWS MLG 9-21-94

| ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME |
|---|---|---|---|---|
| 1-3/ ALL PROCESS | [signature] | [signature] | 9/26/94 | 11:05 |

| ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME |
|---|---|---|---|---|
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| 1 | LABORATORY |

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Form Number: SAL-94-6209

# SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD



PROJECT: DETREX STILL

☐ PLAN NO.: N/A OR ☒ PROJECT NO.: 04.48.01

PROJECT MANAGER/ENGINEER: D. BEHEIER

FOR SAMPLE RELATED PROBLEMS, CONTACT:
ORGANIZATION: FIELD OPERATIONS
NAME: M. MORSE PHONE: 738-0003

SAMPLER: [redacted] PHONE: 9381

NUMBER: 38503 CODE: N/A

SAMPLER SIGNATURE(S): [redacted]

SEND RESULTS TO: [redacted]

SAMPLER REMARKS: All Samples are ASL Level B.
* Do pH if PFLT fails

Rel # 1000004052

CHECK FOR: ☒ S R LAB ☐ BIO LAB ☐ WTP LAB

SAMPLE SOURCE, DESCRIPTION/IDENTIFICATION, ANALYSIS REGIMEN

| ITEM NO. | SAMPLE NUMBER | CUSTOMER NUMBER | SAMPLE POINT | MATRIX CODE | COLLECTED DATE | COLLECTED TIME | CONTAINER/ VOLUME | COMPOSITE | GRAB | NO. OF CONTAINERS | 2487-WC2-P01 | 2471-WC2-P01 | 2459-WC4-P01 | 2442-WC7-P00 | 2063-WC7-P00 | 2218-2222-WC8-P01 | 2048-WC4-P01 | 1063-WC9-P01 | 1063-WC9-P01 | * VOLATILE PFLT P002 RCRA | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 200093951 | 044801-002 | 400005 | M305 | 9/26/94 | 0920 | GLASS 120 ML | X | | 1 | X | | | | | | | | | | | | |
| 2 | 200093952 | 044801-002 | 400005 | M305 | 9/26/94 | 0920 | GLASS 120 ML | X | | 1 | | X | | | | | | | | | | | |
| 3 | 200093953 | 044801-002 | 400005 | M305 | 9/26/94 | 0920 | GLASS 120 ML | X | | 3 | | | X | | | | | | | | | | |
| 4 | 200093954 | 044801-002 | 400005 | M305 | 9/26/94 | 0920 | GLASS 120 ML | X | | 1 | | | | X | | | | | | | | | |
| 5 | 200093955 | 044801-002 | 400005 | M305 | 9/26/94 | 0920 | GLASS 120 ML | X | | 1 | | | | | X | | | | | | | | |
| 6 | | 044801-002 | 400005 | M305 | 9/26/94 | 0920 | GLASS 120 ML | X | | 1 | | | | | | X | | | | | | | |
| 7 | 200093956 | 044801-002 | 400005 | M305 | 9/26/94 | 0920 | GLASS 120 ML | X | | 1 | | | | | | | X | | | | | | |
| 8 | 200093957 | 044801-002 | 400005 | M305 | 9/26/94 | 0920 | GLASS 120 ML | X | | 1 | | | | | | | | X | | | | | REACTIVE HYDROGEN CYANIDE |
| 9 | 200093958 | 044801-002 | 400005 | M305 | 9/26/94 | 0920 | GLASS 120 ML | X | | 1 | | | | | | | | | X | | | | REACTIVE HYDROGEN SULFIDE |
| 10 | 200093959 | 044801-002 | 400005 | M305 | 9/26/94 | 0920 | GLASS 120 ML | X | | 1 | | | | | | | | | | X | | | PFLT PHC |

| ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME |
|---|---|---|---|---|
| 1-10/ All Process | [signature] | Paul Malvizzo | 9/26/94 | 11:05 |

| ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME |
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| 3 | SAMPLER |

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FEMP
RSO - ANALYTICAL

# SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD

Form Number: SA-94-6209



PROJECT: DETREX STILL

☐ PLAN NO.: N/A OR ☒ PROJECT NO.: 04.48.01

PROJECT MANAGER/ENGINEER: D. BEHEIER

FOR SAMPLE RELATED PROBLEMS, CONTACT:

ORGANIZATION: FIELD OPERATIONS

NAME: M. MORSE PHONE: 738-0003

SAMPLER: [redacted] PHONE: 9381

SAMPLER REMARKS: All SAMPLES ARE ASL LEVEL B.

CHARGE NUMBER: 3B503 LOT MARKING CODE: N/A

SAMPLER SIGNATURE(S): [redacted] 8939 [redacted] 10165 Rel # 1000004052

SEND RESULTS TO: [redacted] / [redacted]

CHECK FOR: ☒ S R LAB ☐ BIO LAB ☐ WTP LAB

SAMPLE SOURCE, DESCRIPTION/IDENTIFICATION, ANALYSIS REGIMEN

| ITEM NO. | SAMPLE NUMBER | CUSTOMER NUMBER | SAMPLE POINT | MATRIX CODE | COLLECTED DATE | COLLECTED TIME | CONTAINER/ VOLUME | COMPOSITE | GRAB | NO. OF CONTAINERS | ANALYTES CODE - (UNITS CODE) [illegible] - U19-2007PCD | 2605 - U19-PCC | 2401 - U21-PCI | | | | | | | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 200093960 | 044801-002 | 400005 | M305 | 9/26/94 | 0920 | GLASS 120 ml | X | | 1 | X | | | | | | | | | | | | GAMMA SPECTRAL ANALYSIS |
| 2 | 200093961 | 044801-002 | 400005 | M305 | 9/26/94 | 0920 | GLASS 120 ml | X | | 1 | | X | | | | | | | | | | | |
| 3 | 200093962 | 044801-002 | 400005 | M305 | 9/26/94 | 0920 | GLASS 250 ml | X | | 1 | | | X | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | |
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NOTHING FOLLOWS MLG 9-21-94

NOTHING FOLLOWS MLG 9-21-94

| ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME | ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME |
|---|---|---|---|---|---|---|---|---|---|
| 1-3/All Process | [illegible] | Paul Mahurgan | 9/26/94 | 11:05 | | | | | |

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# Item 6 - SMS Sampling Field Logs - Decontamination Solution

017-36

FERMCO

# FIELD LOGBOOK INDEX

| DATE | TIME START | TIME FINISH | PG | SWAR/CR FORM NUMBER |
|---|---|---|---|---|
| 9-29-94 | 1200 | 1330 | 1 of 2 | SPL-94-6257 |

| SAMPLE PLAN NUMBER | FIELD LOG RECORDER |
|---|---|
| 04.48.01 | M. Grob |

| CUSTOMER NUMBER | SAMPLE POINT | TYPE CODE | MATERIAL CODE | COLLECTION METHOD | SAMPLE DEPTH | TIME | CONTAINER TYPE | NUMBER/ VOLUME | ANL CODE | PRES. CODE | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 400000 | 044EC1-001 | LIQUID | M335 | Grab | N/A | 1225 | Poly | 1/ 1L | 2402 | P11 | |
| | | | | | | 1225 | AMBER GLASS | 1/ 1 GAL | 2493 | P01 | |
| | | | | | | 1225 | AMBER GLASS | 1/ 1 GAL | 2081 | P01 | |
| | | | | | | 1225 | GLASS | 2/ 40 ML | 2300 | P01-P09 | |
| | | | | | | 1225 | Poly | 1/ 1 L | 2001 | P11 | |
| | | | | | | 1225 | Poly | 1/ 1 L | 2002 | P11 | |
| | | | | | | 1225 | AMBER GLASS | 1/ 40 ML | 2218-2222 | P01 | |
| | | | | | | 1225 | GLASS | 1/ 120 ML | 2005 | P00 | U18 |
| 400001 | 044EC1-001 | LIQUID | M335 | Grab | N/A | 1250 | Poly | 1/ 1L | 2402 | P11 | U02 |
| | | | | | | 1250 | AMBER GLASS | 1/ 1 GAL | 2493 | P01 | U06 |
| | | | | | | 1250 | AMBER GLASS | 1/ 1 GAL | 2081 | P01 | U02 |
| | | | | | | 1250 | GLASS | 2/ 40 ML | 2300 | P01-P09 | U02 |
| | | | | | | 1250 | Poly | 1/ 1 L | 2001 | P11 | U06 |
| | | | | | | 1250 | Poly | 1/ 1 L | 2002 | P11 | U06 |
| | | | | | | 1250 | AMBER GLASS | 1/ 40 ML | 2218-2222 | P01 | U06 |
| | | | | | | 1250 | GLASS | 1/ 120 ML | 2005 | P00 | U18 |
| 400010 | 044EC1-003 | LIQUID | M335 | POUR | N/A | 1230 | Poly | 1/ 1L | 2402 | P11 | U02 |
| | | | | | | 1230 | AMBER GLASS | 1/ 1 GAL | 2493 | P01 | U06 |
| | | | | | | 1230 | AMBER GLASS | 1/ 1 GAL | 2081 | P01 | U02 |
| | | | | | | 1230 | GLASS | 2/ 40 ML | 2300 | P01-P09 | U02 |
| | | | | | | 1230 | Poly | 1/ 1 L | 2001 | P11 | U06 |
| | | | | | | 1230 | Poly | 1/ 1 L | 2002 | P11 | U06 |
| | | | | | | 1230 | AMBER GLASS | 1/ 40 ML | 2218-2222 | P01 | U06 |
| | | | | | | 1230 | GLASS | 1/ 120 ML | 2005 | P00 | U18 |
| 400011 | 044EC1-003 | LIQUID | M335 | POUR | N/A | 0900 | GLASS | 3/ 40 ML | 2300 | P01-P09 | U02 |
| 400011 | 044EC1-003 | LIQUID | M335 | POUR | N/A | 0900 | GLASS | 1/ 120 ML | 2005 | P00 | U18 |
| | | | | NOMING FOLLOWS | | MLG | 9-27-94 | | | | |

TYPE CODES: S=Sample Re=Resample D=Duplicate F=Field Blank T=Trip Blank Ri=Rinsate EB=Equipment Blank

| FIELD SCREENING INSTRUMENT TYPE | SERIAL NUMBER | CALIBRATION DATE | CALIBRATION METHOD | CALIBRATION READING |
|---|---|---|---|---|
| | | | | |



REORDER FROM REYNOLDS • REYNOLDS 513-771-8654

FERMCO 017-3

# FIELD LOGBOOK INDEX

DATE: 9-29-94 | PG 2 of 2

TIME START: 1200 | TIME FINISH: 1330

**FERNALD ENVIRONMENTAL RESTORATION MANAGEMENT CORPORATION**
7400 Willey Road
Fernald, OH 45030

PROJECT NAME: DETREX STill

SAMPLE PLAN NO: 04.48.01

LOCATION: old D&D

PROJECT FIELD CONTACT/EXT.: M MORSE 738-0003

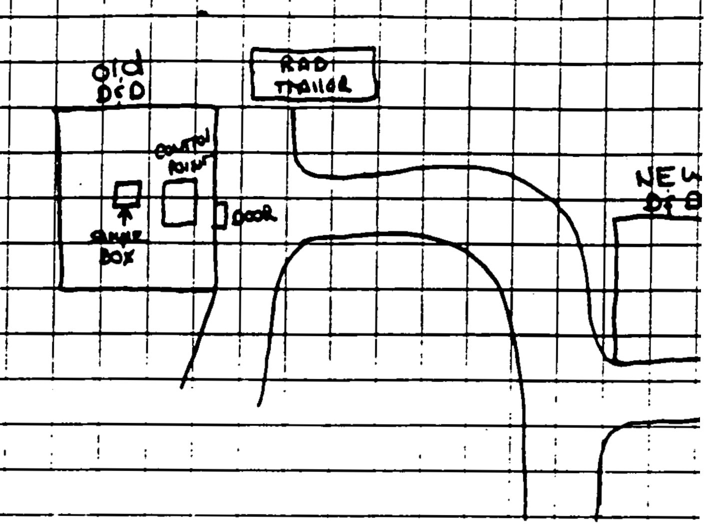
PROCESS PRODUCING WASTE: Uranium Metals Production

PURPOSE OF SAMPLING: Site Media Sampling

FIELD LOGBOOK RECORDER: m Grob

SWARCR FORM NUMBER: SPL-94-6257

UNIT CODE: UC2, UC6, U02, U02, UC6, U0, UC6, U18, U02




FIELD SKETCH

## FIELD NOTES

SP 400001 IS A DUP OF SP 400000.

[redacted] x9381 SAMPLER'S SIGNATURE [redacted] 8939

KAREN REYNOLDS SAMPLER'S SIGNATURE Karen Reynolds

SAMPLER'S SIGNATURE

SAMPLER'S SIGNATURE

000258

ENSERCH ENVIRONMENTAL
DETREX STILL - HAZARDOUS WASTE MANAGEMENT UNIT No. 26
CERTIFICATION REPORT

# Item 7 - SMS Chain of Custody - Decontamination Solution

FEMP
RSO - ANALYTICAL

Form Number SPL 94 6251

# SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD



PROJECT: DETREX STILL

☐ PLAN NO.: N/A OR ☐ PROJECT NO.: 04.48.01

PROJECT MANAGER/ENGINEER: [redacted]

SAMPLER: [redacted] PHONE: 9381

CHARGE NUMBER: 38SU3 LOT MARKING CODE: N/A

SAMPLER SIGNATURE(S): [redacted] 8939/ [redacted] 10/96

SEND RESULTS TO: [redacted] / [redacted]

FOR SAMPLE RELATED PROBLEMS, CONTACT:
ORGANIZATION: FIELD OPERATION
NAME: M. MORSE PHONE: 738-0003

SAMPLER REMARKS: All Samples are ASL Level B

Rel # 1000004096

CHECK FOR: ☒ S R LAB ☐ BIO LAB ☐ WTP LAB

SAMPLE SOURCE, DESCRIPTION/IDENTIFICATION, ANALYSIS REGIMEN

| ITEM NO. | SAMPLE NUMBER | CUSTOMER NUMBER | SAMPLE POINT | MATRIX CODE | COLLECTED DATE | COLLECTED TIME | CONTAINER/ VOLUME | COMPOSITE | GRAB | NO. OF CONTAINERS | 2408-VOA-PII | 2493-VOA-POI | 2081-VOA-POI | 2300-VOA-POI-POI | 2601-VOA-PII | 2002-VOA-PII | 2218-2222-VOA-POI | 2005-VOA-POI | | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 20093911 | 400000 | 044801-001 | M325 | 9-29-94 | 1225 | Poly 1L | | X | 1 | X | | | | | | | | | | | | <.15% WT |
| 2 | 20093912 | 400000 | 044801-001 | M325 | 9-29-94 | 1225 | Amber Glass 1 Gal | | X | 1 | | X | | | | | | | | | | | |
| 3 | 20093913 | 400000 | 044801-001 | M325 | 9-29-94 | 1225 | Amber Glass 1 Gal | | X | 1 | | | X | | | | | | | | | | |
| 4 | 20093914 | 400000 | 044801-001 | M325 | 9-29-94 | 1225 | Glass 40ml | | X | 2 | | | | X | | | | | | | | | <.04% WT |
| 5 | 20093915 | 400000 | 044801-001 | M325 | 9-29-94 | 1225 | Poly 1L | | X | 1 | | | | | X | | | | | | | | <.15% WT |
| 6 | 20093916 | 400000 | 044801-001 | M325 | 9-29-94 | 1225 | Poly 1L | | X | 1 | | | | | | X | | | | | | | <.15% WT |
| 7 | 20093917 | 400000 | 044801-001 | M325 | 9-29-94 | 1225 | Amber Glass 40ml | | X | 1 | | | | | | | X | | | | | | |
| 8 | 20093918 | 400000 | 044801-001 | M325 | 9-29-94 | 1225 | Glass 120ml | | X | 1 | | | | | | | | X | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | |

Nothing Follows MGR 9-27-94

Nothing Follows MGR 9-27-94

| ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME | ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME |
|---|---|---|---|---|---|---|---|---|---|
| 1-8/ All Process | [redacted] | [signature] | 9/29/94 | 1420 | | | | | |

| NO. | DISTRIBUTION OF COPIES |
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| 1 | LABORATORY |
| 2 | REQUESTER |
| 3 | SAMPLER |

FS F-3361 (REV 3/25/93)

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FEMP
RSO - ANALYTICAL

Form Number SAL . 94 . 6257

# SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD



PROJECT: DETREX STILL

☐ PLAN NO.: N/A OR ☐ PROJECT NO.: 04.48.01

PROJECT MANAGER/ENGINEER: M. HEINEN

FOR SAMPLE RELATED PROBLEMS, CONTACT:

ORGANIZATION: FIELD OPERATION

NAME: M. MORSE PHONE: 738-0003

SAMPLER: [redacted] PHONE: 9381

CHARGE NUMBER: 38SU3 LOT BANKING CODE: N/A

SAMPLER SIGNATURE(S): [redacted] 8939/ [redacted] 10196

SEND RESULTS TO: [redacted]

SAMPLER REMARKS: All SAMPLES ARE ASL LEVEL B

Rel # 1000004096

CHECK FOR: ☒ S R LAB ☐ BIO LAB ☐ WTP LAB

SAMPLE SOURCE, DESCRIPTION/IDENTIFICATION, ANALYSIS REGIMEN

| ITEM NO. | SAMPLE NUMBER | CUSTOMER NUMBER | SAMPLE POINT | MATRIX CODE | COLLECTED DATE | COLLECTED TIME | CONTAINER/ VOLUME | COMPOSITE | GRAB | NO. OF CONTAINERS | 2402 - U03 - P11 | 2493 - U06 - P01 | 2081 - U03 - P01 | 2300 - U03 - P01 - P09 | 2001 - U06 - P11 | 2002 - [illegible] P11 U02 | 2318 - 2322 - U04 - P01 | 2005 - U18 - P00 | | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 200093919 | 400001 | 044801-001 | M325 | 9-29-94 | 1250 | Poly 1 L | | X | 1 | X | | | | | | | | | | | | < .15 % wt |
| 2 | 200093920 | 400001 | 044801-001 | M325 | 9-29-94 | 1250 | Amber Glass 1 Gal | | X | 1 | | X | | | | | | | | | | | |
| 3 | 200093921 | 400001 | 044801-001 | M325 | 9-29-94 | 1250 | Amber Glass 1 Gal | | X | 1 | | | X | | | | | | | | | | |
| 4 | 200093922 | 400001 | 044801-001 | M325 | 9-29-94 | 1250 | Glass 40 ml | | X | 2 | | | | X | | | | | | | | | < .04% wt |
| 5 | 200093923 | 400001 | 044801-001 | M325 | 9-29-94 | 1250 | Poly 1 L | | X | 1 | | | | | X | | | | | | | | < .15 % wt |
| 6 | 200093924 | 400001 | 044801-001 | M325 | 9-29-94 | 1250 | Poly 1 L | | X | 1 | | | | | | X | | | | | | | < .15 % wt |
| 7 | 200093925 | 400001 | 044801-001 | M325 | 9-29-94 | 1250 | Amber Glass 40 ml | | X | 1 | | | | | | | X | | | | | | |
| 8 | 200093926 | 400001 | 044801-001 | M325 | 9-29-94 | 1250 | Glass 120 ml | | X | 1 | | | | | | | | X | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | |

NOTHING FOLLOWS MLG 9-27-94

NOTHING FOLLOWS MLG 9-27-94

| ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME | ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME |
|---|---|---|---|---|---|---|---|---|---|
| 1-8 / All Process | [signature] | [signature] | 9/29/94 | 1420 | | | | | |

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| 2 | REQUESTER |

RSO - ANALYTICAL

# SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD



PROJECT: DETREX STILL

☐ PLAN NO.: N/A OR ☒ PROJECT NO.: 04.48.01

PROJECT MANAGER/ENGINEER: M. HEINEN

FOR SAMPLE RELATED PROBLEMS, CONTACT:

ORGANIZATION: Field OPERATION

NAME: M. MORSE PHONE: 738-0003

SAMPLER: [redacted] PHONE: 9381

CHARGE NUMBER: 3BSU3 LOT MARKING CODE: N/A

SAMPLER REMARKS: All Samples ARE ASL LEVEL B.

SAMPLER SIGNATURE(S): [redacted] 5939/ [redacted] 10/26

SEND RESULTS TO: M. HEINEN / M. MORSE

RSL # 100004096

CHECK FOR: ☐ S R LAB ☐ BIO LAB ☐ WTP LAB

SAMPLE SOURCE, DESCRIPTION/IDENTIFICATION, ANALYSIS REGIMEN

| ITEM NO. | SAMPLE NUMBER | CUSTOMER NUMBER | SAMPLE POINT | MATRIX CODE | COLLECTED DATE | COLLECTED TIME | CONTAINER/ VOLUME | COMPOSITE | GRAB | NO. OF CONTAINERS | 2002-VOA-PII | 2475-VOA-POL | 3081-VOA-POL | 2300-VOA-POL-PAS | 2001-VOA-PII | 2002-VOA-PII | 2318-8222-VOA-POL | 2005-VOA-POL | | | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 20009401[illegible] | 400010 | 044801-003 | M325 | 9-29-94 | 1230 | Poly 1L | | X | 1 | X | | | | | | | | | | | | | < .15% wt |
| 2 | 20009401[illegible] | 400010 | 044801-003 | M325 | 9-29-94 | 1230 | AMBER GLASS 1 GAL | | X | 1 | | X | | | | | | | | | | | | |
| 3 | 20009401[illegible] | 400010 | 044801-003 | M325 | 9-29-94 | 1230 | AMBER GLASS 1 GAL | | X | 1 | | | X | | | | | | | | | | | |
| 4 | 20009401[illegible] | 400010 | 044801-003 | M325 | 9-29-94 | 1230 | GLASS 40 ml | | X | 2 | | | | X | | | | | | | | | | < .04% wt |
| 5 | 20009401[illegible] | 400010 | 044801-003 | M325 | 9-29-94 | 1230 | Poly 1L | | X | 1 | | | | | X | | | | | | | | | < .15% wt |
| 6 | 20009401[illegible] | 400010 | 044801-003 | M325 | 9-29-94 | 1230 | Poly 1L | | X | 1 | | | | | | X | | | | | | | | < .15% wt |
| 7 | 20009401[illegible] | 400010 | 044801-003 | M325 | 9-29-94 | 1230 | AMBER GLASS 40 ml | | X | 1 | | | | | | | X | | | | | | | |
| 8 | 20009401[illegible] | 400010 | 044801-003 | M325 | 9-29-94 | 1230 | GLASS 120ml | | X | 1 | | | | | | | | X | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | |

NOTHING Follows MLG 9-27-94

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|---|---|---|---|---|
| 1-8 / All Process | [signature] | [signature] | 9/29/94 | 1420 |
| | | | | |
| | | | | |
| | | | | |

| ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME |
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FS F 3381 (REV 3/25/93)

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000263

FEMP
RSO - ANALYTICAL

Form Number SPL-94-6257

# SITE-WIDE ANALYSIS REQUEST/CUSTODY RECORD



PROJECT: DETREX STILL

☐ PLAN NO.: N/A OR ☒ PROJECT NO.: 04.48.01

PROJECT MANAGER/ENGINEER: [redacted]

FOR SAMPLE RELATED PROBLEMS, CONTACT:
ORGANIZATION: FIELD OPERATIONS
NAME: M. MORSE PHONE: 738-0003

SAMPLE [redacted] PHONE: 9381

CHARGE NUMBER: 3BSU3 LOT MARKING CODE: N/A

SAMPLER REMARKS: All Samples are ASL Level B.

SAMPLER SIGNATURE(S): [redacted] 8939 / [redacted] 10/96

SEND RESULTS TO: M. HEINEN / M. MORSE

PSL # 1000004096

CHECK FOR: ☒ S R LAB ☐ BIO LAB ☐ WTP LAB

SAMPLE SOURCE, DESCRIPTION/IDENTIFICATION, ANALYSIS REGIMEN

| ITEM NO. | SAMPLE NUMBER | CUSTOMER NUMBER | SAMPLE POINT | MATRIX CODE | COLLECTED DATE | COLLECTED TIME | CONTAINER/ VOLUME | COMPOSITE | GRAB | NO. OF CONTAINERS | ANALYTES CODE - (UNITS CODE) 2300 - VOA-PQL-PQA | 2005 - U18-PQA | | | | | | | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 200094024 | 400011 | 044801-003 | M325 | 9-29-94 | 0900 | Glass 40ml | | X | 3 | X | | | | | | | | | | | < .04% wt |
| 2 | 200094025 | 400011 | 044801-003 | M325 | 9-29-94 | 0900 | Glass 120ml | | X | 1 | | X | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | |

Nothing Follows MLG 9-27-94

Nothing Follows MLG 9-27-94

| ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME |
|---|---|---|---|---|
| 1-2 / all process | [signature] | [signature] | 9/29/94 | 1420 |

| ITEM/REASON | RELINQUISHED BY | RECEIVED BY | DATE | TIME |
|---|---|---|---|---|
| | | | | |

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FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

# Hazardous Waste Management Unit No. 26 Closure Certification Report for the Detrex Still

## Attachments D to H
### Volume 2 of 2

September 1995

U.S. DEPARTMENT OF ENERGY

000264

007211

# Hazardous Waste Management Unit No. 26
# Closure Certification Report
# for the
# Detrex Still

## Attachments D to H
## Volume 2 of 2

Fernald Environmental Management Project

September 1995

**U.S. DEPARTMENT OF ENERGY**

000265

# CONTENTS


| | |
|---|---|
| ATTACHMENT D | LABORATORY ANALYTICAL RESULTS |
| ATTACHMENT E | CONCRETE SCABBLING DATA |
| ATTACHMENT F | RCRA DETERMINATIONS AND MATERIAL EVALUATION FORMS FOR GENERATED WASTES |
| ATTACHMENT G | ENGINEER'S FIELD LOG |
| ATTACHMENT H | CRU3 FIELD IMPLEMENTATION NOTES |

# ATTACHMENT D

# LABORATORY ANALYTICAL RESULTS

Item 1 - Laboratory Analytical Results - Tank Residues

Item 2 - Laboratory Analytical Results - Decontamination Solution

Item 3 - Laboratory Analytical Results - Scabbled Concrete

**Item 1 - Laboratory Analytical Results - Tank Residues**

Rec'd from CM 11/14/94 GLM

Quanterra Incorporated
13715 Rider Trail North
Earth City, Missouri 63045

314 298-8566 Telephone
314 298-8757 Fax

Recvd 11/16/94 omm

ORIGINAL

Quanterra Environmental Services

007211

Copied for D. Entry 11/21/94 GLM

CERTIFICATE OF ANALYSIS

FERMCO
P.O. Box 398074
Cincinnati, OH 45239-8704

ATTENTION: Mainerd Sorensen

November 9, 1994



| | |
|---|---|
| PROJECT NUMBER : | 500.01 |
| RELEASE NUMBER: | 3975 |
| DATE RECEIVED: | September 21, 1994 |
| NUMBER OF SAMPLES: | Fourteen (14) |
| SAMPLE MATRIX: | Six (6) Matrix Code A (Water)<br>Eight (8) Matrix Code C (Construction Material) |

I. Introduction

On September 21, 1994, fourteen (14) samples were received at Quanterra Environmental Services at St. Louis from Fernald Environmental Restoration Management Company. The list of analytical tests performed, as well as receipt and analysis, can be found in the attached report. The samples were labeled as follows:

| FERMCO SAMPLE ID | | QUANTERRA SAMPLE ID | ANALYSES REQUESTED |
|---|---|---|---|
| 200093963 | FIELD BLANKS | 6172-001 | Table 3 (Total Metals) |
| 200093963 | | 6172-001DUP | Table 3 (Total Metals) |
| 200093963 | | 6172-001MS | Table 3 (Total Metals) |
| 200093964 | FIELD BLANK | 6172-002 | Table 12 (Total Herbicides) |
| 200093964 | | 6172-002MS | Table 12 (Total Herbicides) |
| 200093964 | | 6172-002MSD | Table 12 (Total Herbicides) |
| 200093965 | PB | 6172-003 | Table 8 (Total BNA's) |
| 200093965 | | 6172-003MS | Table 8 (Total BNA's) |
| 200093965 | | 6172-003MSD | Table 8 (Total BNA's) |
| 200093966 | FB | 6172-004 | Table 5 (Total VOA's) |
| 200093969 | FB | 6172-005 | Table 22 (PCB's) |

| FERMCO SAMPLE ID | QUANTERRA SAMPLE ID | ANALYSES REQUESTED |
|---|---|---|
| 200093969 FB | 6172-005MS | Table 22 (PCB's) |
| 200093969 FB | 6172-005MSD | Table 22 (PCB's) |
| 200093997 TB | 6172-006 | Table 5 (Total VOA's) |
| 200093999 R | 6172-007 | Table 2 (TCLP Metals) |
| | | Table 3 (Total Metals) |
| 200093999 | 6172-007DUP | Table 2 (TCLP Metals) |
| 200093999 | 6172-007MS | Table 2 (TCLP Metals) |
| 200094000 | 6172-008 | Table 12 (Total Herbicides) |
| 200094000 R | 6172-008MS | Table 12 (Total Herbicides) |
| 200094000 | 6172-008MSD | Table 12 (Total Herbicides) |
| 200094001 | 6172-009 | Table 8 (Total BNA's) |
| 200094001 R | 6172-009MS | Table 8 (Total BNA's) |
| 200094001 | 6172-009MSD | Table 8 (Total BNA's) |
| 200094002 | 6172-010 | Table 5 (Total VOA's) |
| 200094002 R | 6172-010MS | Table 5 (Total VOA's) |
| 200094002 | 6172-010MSD | Table 5 (Total VOA's) |
| 200094005 | 6172-011 | Table 22 (PCB's) |
| 200094005 R | 6172-011MS | Table 22 (PCB's) |
| 200094005 | 6172-011MSD | Table 22 (PCB's) |
| 200094007 | 6172-012 | Table 3 (Total Metals) |
| 200094007 R | 6172-012DUP | Table 3 (Total Metals) |
| 200094007 | 6172-012MS | Table 3 (Total Metals) |
| 200094008 R | 6172-013 | Table 12 (Total Herbicides) |
| 200094010 | 6172-014 | Table 4 (TCLP VOA's) |
| 200094010 R | 6172-014MS | Table 4 (TCLP VOA's) |
| 200094010 | 6172-014MSD | Table 4 (TCLP VOA's) |

II. Analytical Results/Methodology

The analytical results for this report are presented by analytical tests. Each set of data will include sample identification information, the analytical results, and the appropriate detection limits.

The analyses requested includes: Metals by EPA methods 6010/7470, Herbicides by EPA method 8150, Semivolatiles by EPA method 8270, Volatiles by EPA method 8240, PCB's by EPA method 8080, TCLP Metals by EPA methods 1311/6010/7470, TCLP Volatiles by EPA methods 1311/8240

III. Quality Control

The QA/QC information can be found immediately following the analytical data. This QA/QC data are used to assess the laboratory's accuracy and precision during the analytical procedure.

Duplicate and matrix spike analyses were performed for Matrix A Total Metals for sample 200093963 (6172-001).

Matrix spike and matrix spike duplicate analyses were performed for Matrix A Total Herbicides for sample 200093964 (6172-002).

Matrix spike and matrix spike duplicate analyses were performed for Matrix A Total Semivolatiles for sample 200093965 (6172-003).

Matrix spike and matrix spike duplicate analyses were performed for Matrix A Total Volatiles for sample 20009314 (6342-010) from Release 4096.

Matrix spike and matrix spike duplicate analyses were performed for Matrix A PCB's for sample 200093969 (6172-005).

Duplicate and matrix spike analyses were performed for Matrix C TCLP Metals for sample 200093999 (6172-007).

Matrix spike and matrix spike duplicate analyses were performed for Matrix C Total Herbicides for sample 200094000 (6172-008).

Matrix spike and matrix spike duplicate analyses were performed for Matrix C Total Semivolatiles for sample 200094001 (6172-009).

Matrix spike and matrix spike duplicate analyses were performed for Matrix C Total Volatiles for sample 200094002 (6172-010).

Matrix spike and matrix spike duplicate analyses were performed for Matrix C PCB's for sample 200094005 (6172-011).

Duplicate and matrix spike analyses were performed for Matrix C Total Metals for sample 200094007 (6172-012).

Matrix spike and matrix spike duplicate analyses were performed for Matrix C TCLP Volatiles for sample 200094010 (6172-014).

IV. Comments/Nonconformances

These samples were received at a temperature of 12° C and analyzed "as is" per client request.

PCB's

Insufficient sample to perform percent moisture for PCB sample 200094005 (6172-011).

Soil MS/MSD recoveries of 968% and 1369% were due to interference from Aroclor-1260 in samples.

Surrogate recoveries in 200094005, -94005MS, and -94005MSD (6172-011, -011MS, and -011MSD) were not calculated due to interference from Aroclor-1260.

Sample 200093969 (6172-005) was submitted for PCB8080 analysis with 40ml volume (vial). Client was notified and said to take enough sample volume from samples 200093964 (6172-002) and 200093965 (6172-003) to obtain a liter and analyze this as sample 200093969.

HERBICIDES

Insufficient sample to perform percent moisture for Herbicide sample 200094008 (6172-013).

For samples 200094000, -94000MS, and -94000MSD (6172-008, -008MS, and -008MSD) 10 grams of sample were used instead of the normal 50 grams. Extracts were then diluted 1:10 instead of the normal 1:50. Thus the detection limits remain the same and the Form I's show a dilution factor of 0.2.

TCLP METALS

Barium and cadmium for sample 200093999 (6172-007) for required a 1:4 dilution due to QC problems caused by matrix interference.

## TOTAL METALS

There are no comments or nonconformances associated with this analysis.

## VOLATILES

Per client request, the following Table 4 (VOA8240) compounds to Table 5 (TCLP Volatiles) for the following samples:

| Compounds | Client ID | Quanterra ID |
|---|---|---|
| Chloroform | 200093966 | 6172-004 |
| 1,2 Dichloroethane | 200093997 | 6172-006 |
| 1,1 Dichloroethylene | 200094002 | 6172-010 |
| Vinyl Chloride | | |

## SEMIVOLATILES

Sample 200094001 (6172-009) could not be filtered due to dark, viscous material. Sample was diluted to 50ml and still could not be filtered. Client was notified and said to dilute enough to filter even though detection limits would raise significantly.

Samples 6172-009, -009MS, and -009MSD were difficult matrices. Initially, the extract obtained was a thick, black liquid that was unfiltered, even at a 1:50 dilution using gas pressure. No analysis could be completed on this extract.

Therefore, the laboratory re-extracted the sample using the medium-level technique. Unfortunately, the re-extraction occurred 28 days past the 14 day extraction holding time. GPC clean-up was performed on the extract, which removed most of the color from the extract. However, the LCS associated with the medium-level extraction suffers from low 2-fluorophenol and phenol-d5 surrogate recoveries and low 1,4-dichlorobenzene, 2-methylphenol, hexachloroethane, nitrobenzene and 2,4,5-trichlorophenol spike recoveries. The associated MS and MSD, though, each gave acceptable recoveries for all surrogate and all spike compounds except pyridine, which was not recovered at all from the matrix. The pyridine recovery was in-control on the LCS. Thus, the LCS obviously suffers from a laboratory dependent error, but the MS/MSD recoveries indicate that the sample analysis is in-control. The missing pyridine recoveries from the MS/MSD indicate a matrix problem for this analyte only as acceptable recovery of this compound was obtained from the LCS.

FERMCO
Project Number: 500.01
November 9, 1994

Release Number: 3975

I certify that this Certificate of Analysis is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Reviewed and approved:

Kathy R. Giacopelli for Robert E. White

Robert E. White
Project Manager

434285

RELEASE NO.: 1000003975

SAMPLE SHIPMENT DATE: 9-20-94

SAMPLE SHIPPER: GORDON BELL

OFF-SITE LAB CONTACT: Bob White

FERMCO CONTACT/PHONE: Mainerd Sorensen (513) 738-9159

REQUIRED REPORT DATE: Normal (Per Contract)

SAMPLE TEAM: FOG

REPORT TO:
FERMCO
P.O. BOX 398704
CINCINNATI, OH 45239-8704

RECEIVING LAB NAME: Quanterra - St Louis

RECEIVING LAB ADDRESS: 13715 Rider Trail North - Earth City MO 63045

| | SAMPLE NUMBER | SAMPLE DESCRIPTION/TYPE/PH | MATRIX CODE | DATE/TIME COLLECTED | CONTAINER TYPE | SAMPLE VOLUME | PRESERVATION | ANALYSIS REQUESTED | % Full | CONDITION UPON RECEIPT* |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 200093963/400006 | water 2 | A | 9-16-94 1100 | PLS | 1x1L | $HNO_3$ | TBL 3 | 95 | |
| 2 | 200093964/400006 | water | A | 9-16-94 1100 | Amb GLS | 1x1GAL | 4°C | TBL 12 | 100 | |
| 3 | 200093965/400006 | water | A | 9-16-94 1100 | Amb GLS | 1x1GAL | 4°C | TBL 8 | 100 | |
| 4 | 200093966/400006 | water | A | 9-16-94 1100 | GLS | 1x40ml | 4°C+HCL | TBL 5 | 100 | |
| 5 | 200093969/400006 | water | A | 9-16-94 1100 | GLS | 1x40ml | 4°C | TBL 22 | 100 | |
| 6 | 200093997/400007 | water | A | 9-16-94 0930 | GLS | 3x40ml | 4°C+HCL | TBL 5 | 100 | |
| 7 | 200093999/400008 | Solid | C | 9-16-94 1045 | GLS | 1x250ml | 4°C | TBL 2, 3 | 85 | |
| 8 | 200094000/400008 | Solid | C | 9-16-94 1045 | GLS | 1x120ml | 4°C | TBL 12 | 60 | |
| 9 | 200094001/400008 | Solid | C | 9-16-94 1045 | Amb GLS | 1x120ml | 4°C | TBL 8 | 60 | |
| 10 | 200094002/400008 | Solid | C | 9-16-94 1045 | GLS | 1x120ml | 4°C | TBL 5 | 70 | |
| 11 | 200094005/400008 | Solid | C | 9-16-94 1045 | GLS | 1x120ml | 4°C | TBL 22 | 60 | |

SPECIAL INSTRUCTIONS: TBL= TABLE

SAMPLE PLAN NUMBER: NA

PROJECT NAME: DETREX STILL CLOSURE 04.48.01

CHARGE NUMBER: 3RSU3

| CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cooler | Sealed | with | Custody | TAPE | | | | |

| RELINQUISHED | | | RECEIVED | | |
|---|---|---|---|---|---|
| RELINQUISHED BY | DATE | TIME | DATE | TIME | RECEIVED BY |
| 1. Gordon Bell | 9-20-94 | 1300 | 1. 9-21-94 | 09:00 | Fred M Schultz |
| 2. | | | 2. | | |
| 3. | | | 3. | | |

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| 4 | BLUE | ORIGINATOR |

FS-F-3366 (REV. 12/31/92)

*IF SEALS ARE BROKEN, CONTACT THE FERMCO CONTACT LISTED ABOVE IMMEDIATELY.

000275

000231

RSO - ANALYTICAL LABORATORY SERVICES

# OFF-SITE LABORATORY CUSTODY TRANSFER AND ANALYSIS REQUEST RECORD (OCTR)

REFERENCE DOCUMENT NO: SAR/CR: SPL-94-6125

| | | |
|---|---|---|
| PURCHASE ORDER NO.: 434285 | OFF-SITE LAB CONTACT: Bob White | REPORT TO: FERMCO P.O. BOX 398704 CINCINNATI, OH 45239-8704 |
| RELEASE NO.: 1000003975 | FERMCO CONTACT/PHONE: Maurerd Sorensen (513) 738-9159 | |
| SAMPLE SHIPMENT DATE: 9-20-94 | REQUIRED REPORT DATE: NORMAL (PER Contract) | RECEIVING LAB NAME: QUANTERRA - St Louis |
| SAMPLE SHIPPER: GORDON BELL | SAMPLE TEAM: FOG | RECEIVING LAB ADDRESS: 13715 Rider Trail North - Earth City, MO 63045 |

| | SAMPLE NUMBER | SAMPLE DESCRIPTION/TYPE | Matrix CODE | DATE/TIME COLLECTED | CONTAINER TYPE | SAMPLE VOLUME | PRESERVATION | ANALYSIS REQUESTED | % Full | CONDITION UPON RECEIPT* | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 200094007/400009 | Solid | C | 9-16-94 1055 | GLS | 1x250ml | 4°C | TBL 3 | 80 | | AS |
| 2 | 200094008/400009 | Soil | C | 9-16-94 1055 | GLS | 1x120ml | 4°C | TBL 12 | 50 | | B |
| 3 | 200094016/400009 | Solid | C | 9-16-94 1055 | GLS | 1x120ml | 4°C | TBL 4 | 25 | | B |
| 4 | | | | | | | | | | | |
| 5 | | | | | | | | | | | |
| 6 | | | | | | | | | | | |
| 7 | | | | | | | | | | | |
| 8 | | | | | | | | | | | |
| 9 | | | | | | | | | | | |
| 10 | | | | | | | | | | | |
| 11 | | | | | | | | | | | |

Nothing Follows SAB 9-20-94

SPECIAL INSTRUCTIONS: TBL = TABLE

| SAMPLE PLAN NUMBER: | PROJECT NAME: | CHARGE NUMBER: |
|---|---|---|
| NA | DETREX STILL CLOSURE 04.48.01 | 3BSU3 |

| CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cooler Sealed with Custody TAPE | | | | | | | | | | | |

| RELINQUISHED | | | RECEIVED | | |
|---|---|---|---|---|---|
| RELINQUISHED BY | DATE | TIME | DATE | TIME | RECEIVED BY |
| 1. Gordon Bell | 9-20-94 | 1300 | 1. 9-21-94 | 09:00 | 2nd [illegible] |
| 2. | | | 2. | | |
| 3. | | | 3. | | |

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*IF SEALS ARE BROKEN, CONTACT THE FERMCO CONTACT LISTED ABOVE IMMEDIATELY

942000

**TJ TECHNOLOGY CORPORATION**

007211

C.U.R. and C.O.C.
COPIED TO: D.K. & K.B.
DATE: 9-21-94
TIME: 11:30
BY: [illegible]

Work Order No.: 6172

**Condition Upon Receipt Variance Report**
**ITAS - St. Louis Laboratory**

Client: Fermco
Date: 9-21-94
Project No: 500.01
Initiated by: [illegible]
Analysis Requested: Refer to RFA/COC
RFA/COC Numbers: SPL-94-6125
Client Sample Numbers Affected: Entire Login

**Condition/Variance (Check all that apply):** Circle Number to Denote that Item was Evaluated. "NA" = "Not Applicable".

1. NA Not enough sample received for proper analysis.
   Received approximately: _____
2. ☐ Sample received broken/leaking.
3. ☐ Sample received without proper preservative.
   ☒ Cooler temperature not within 4°C ± 2°C
   Record temperature: 12 °C
   ☐ pH _____
   ☐ other: _____
4. ☐ Sample received in improper container.
5. ☐ Sample received without proper paperwork. Explain:
   _____
6. ☐ Paperwork received without sample.
7. ☐ No sample ID on sample container.
8. ☐ Custody tape disturbed/broken/missing.
9. NA Sample splits performed by lab.
10. NA Volatile sample received with approximately _____ mm headspace
11. ☐ Sample ID on container does not [illegible] on paperwork. Explain:
    _____
    _____
12. ☐ All coolers on airbill not received [illegible]
13. ☐ Other (explain below):
    Shipping containers not rad surveyed
    _____
    _____

ns:

_____

_____

rective Action:

Client's Name: _____ Informed verbally on: _____ By: _____
Client's Name: _____ Informed in writing on: _____ By: _____

Sample(s) processed "as is". Comments: _____
Sample(s) on hold until: _____ If released, notify: _____

ia Control Supervisor Review: (or designee) _____ Date: _____
t Management Review: [illegible] Date: 9-22-94

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

1281

000277

ITAS - St. Louis

# CONVERSATION RECORD

| TIME | DATE | PROJECT NO. |
|---|---|---|
| 4:10 | 10-26-94 | 500.01 |

TYPE ☐ VISIT ☐ CONFERENCE ☒ TELEPHONE ☐ INCOMING ☒ OUTGOING

Location of Visit/Conference:

ROUTING

| NAME/SYMBOL | INT |
|---|---|
| | |
| | |
| | |
| | |

| NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU | ORGANIZATION (Office, dept., bureau, etc.) | TELEPHONE NO. |
|---|---|---|
| Mainerd Sorensen | FERMCO | |

SUBJECT

SUMMARY

3985

Sample 200094001

unable to filter dark material - very viscious

diluted up to 50mL, still can't filter

go ahead an dilute per Mainerd.

Don told Mainerd that this would increase the detection limits significantly.

Mainerd said, "some results would be better than none."

"Proceed with the dilutions."

ACTION REQUIRED

| NAME OF PERSON DOCUMENTING CONVERSATION | SIGNATURE | DATE |
|---|---|---|
| | R.S. White | 10-26-94 |

ACTION TAKEN

& Don Hesse

| SIGNATURE | TITLE | DATE |
|---|---|---|
| | | |

Page ____ of ____

000278

Date: 10-05-94
To : Don Hesse
From: Bob White/Kathy Giacopelli

Per client request, please add the following Table 4 (VOA8240) compounds to Table 5 for the following releases and samples:

Chloroform
1,2 Dichloroethane
1,1 Dichloroethylene
Vinyl Chloride

Release 3975

| Client ID | Quanterra ID |
|---|---|
| 200093966 | 6172-004 |
| 200093997 | 6172-006 |
| 200094002 | 6172-010 |

Release 4052

| Client ID | Quanterra ID |
|---|---|
| 200093930 | 6271-001 |
| 200093935 | 6271-006 |
| 200093940 | 6271-009 |
| 200093953 | 6271-018 |

Release 4096

| Client ID | Quanterra ID |
|---|---|
| 200093914 | 6342-010 |
| 200093922 | 6342-011 |
| 200094018 | 6342-012 |
| 200094024 | 6342-013 |

ITAS - St. Louis

| CONVERSATION RECORD | TIME | DATE 9-23-94 | PROJECT NO. 500.01 |
|---|---|---|---|

TYPE ☐ VISIT ☐ CONFERENCE ☒ TELEPHONE ☐ INCOMING ☒ OUTGOING

Location of Visit/Conference:

| ROUTING NAME/SYMBOL | INT |
|---|---|
| | |
| | |
| | |

| NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU | ORGANIZATION (Office, dept., bureau, etc.) | TELEPHONE NO. |
|---|---|---|
| Larry Evans | FERMCO | |

SUBJECT

Release 3975

SUMMARY

Sample 200093969 (6172-005) was submitted for PCB 8080 (Table 22) with ~40 mL volume (vial). Please advise the lab. on how to proceed with this analysis.

Larry checked and said to take enough sample volume from samples 200093964 (6172-002) and 200093965 (6172-003) to obtain a liter and analyze this as sample 200093969.

ACTION REQUIRED

| NAME OF PERSON DOCUMENTING CONVERSATION | SIGNATURE | DATE |
|---|---|---|
| | Robert E. White | 9/23/94 |

ACTION TAKEN

| SIGNATURE | TITLE | DATE |
|---|---|---|
| | | |

Page ____ of ____

FERMCO
P.O. BOX 398704
Cincinnati, OH. 45239-8704

FACSIMILE LEAD SHEET

No. of Pages(Including coversheet): 1

DATE: September 21, 1994

TO: Bob White

COMPANY NAME: Quanterra

LOCATION: Earth City, MO.

FAX NO. TO BE CALLED: (314) 298-8757 TELEPHONE NO.: (314) 298-8566

FROM: Larry Evans Fax NO.: (513) 738-6667
TELEPHONE NO.: (513) 738-9269

**********

MESSAGE

SUBJECT: FERMCO release 1000003975 with samples received at 12 degrees C.

Bob,

After consulting with my customer, the decision was to process the samples "as is". Do you have enough sample and sample fractions to complete all the requested analysis? When looking at the Non-Conformance and the Conditions/Variance items I noticed that some samples were in the improper containers, not labeled correctly and or received broken. Please let me know if any other conditions exist that might effect the ability of the lab to perform the requested work.

If you have any questions or concerns, please feel free to contact me.

Thank you,

Larry Evans

# QUANTERRA ENVIRONMENTAL SERVICES

FAXED

## ST. LOUIS, MO

FAX TRANSMISSION

| | |
|---|---|
| TO: Mainerd Sorensen | |
| COMPANY: FERMCO | |
| FAX NUMBER: 513-738-6667 | |
| SENDER: Kathy Giacopelli | |
| DATE: 09/21/94 | OPERATOR: KPG |
| TIME: 1:25 | NUMBER OF PAGES: (INCLUDES COVER) 4 |

St. Louis Laboratory
Fax Number: (314) 298-8757
If You Experience Trouble, Call (314) 298-8566

Quanterra.....Subcontract No. 434285..... Project 500.01

Confirmation of Sample Receipt and Condition Upon Receipt for:

Release 3975

These samples were received at a temperature of 12° C.

Process "as is" ?

# QUANTERRA ENVIRONMENTAL SERVICES

FAXED

## ST. LOUIS, MO

FAX TRANSMISSION

| | |
|---|---|
| TO: Mainerd Sorensen | |
| COMPANY: FERMCO | |
| FAX NUMBER: 513-738-6667 | |
| SENDER: Kathy Giacopelli | |
| DATE: 10/07/94 | OPERATOR: KPL |
| TIME: 9.53 | NUMBER OF PAGES: (INCLUDES COVER) 1 |

St. Louis Laboratory
Fax Number: (314) 298-8757
If You Experience Trouble, Call (314) 298-8566

Quanterra.....Subcontract No. 434285..... Project 500.01

RE: Release 3975

Not enough sample available to do percent moisture for the samples:

200094005 (6172-011) Table 22 PCB's

200094008 (6172-014) Table 12 Herbicides

To: Britian / Dale
From: Bob White

No moisture available for the samples below:

6172-011 PCB 8080
6172-013 HERB 8150

V-OA 8246 Comments a
Release 3975

Quanterra October 06, 1994 04:14 pm
Account: 10872 Project: 500.01 Fernald Env. Restoration Mgt. Corp. QAS No. 500 Rev. 2
Master Sample Login: 6172

Project Manager: R. White

Draft: [Final] Entered and Reviewed by: KR Giacopelli PM Review: Robert E. White 10/07/94

Sample Header Template:

| Sample No. / Comments / # / Date: | Client ID | Container Type | Analysis | C-Matrix | Date: Collected | Received | Due | Shipper | Rad Category | Rad Sample No. (Container Numbers:% Filled) |
|---|---|---|---|---|---|---|---|---|---|---|
| 6172-001 CLP FORMS | 200093963 | | | Water | 16-SEP-94 11:00 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-001 |
| 1 | | PN - Plastic-1L | HG/7470/04 | | S HNO3 | 19-OCT-94 | 14-OCT-94 | S4B | | (99724:95) |
| 1 | | | ICAP/6010/04 | | S HNO3 | 19-OCT-94 | 15-MAR-95 | S4B | | (99724:95) |
| 1 | | | RAD/SCREEN/04 | | S HNO3 | 19-OCT-94 | 20-MAR-95 | S4B | | (99724:95) |
| 6172-001DUP CLP FORMS | 200093963 | | | Water | 16-SEP-94 11:00 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-001 |
| 1 | | PN - Plastic-1L | HG/7470/04 | | S HNO3 | 19-OCT-94 | 14-OCT-94 | S4B | | (99724:95) |
| 1 | | | ICAP/6010/04 | | S HNO3 | 19-OCT-94 | 15-MAR-95 | S4B | | (99724:95) |
| 6172-001MS CLP FORMS | 200093963 | | | Water | 16-SEP-94 11:00 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-001 |
| 1 | | PN - Plastic-1L | HG/7470/04 | | S HNO3 | 19-OCT-94 | 14-OCT-94 | S4B | | (99724:95) |
| 1 | | | ICAP/6010/04 | | S HNO3 | 19-OCT-94 | 15-MAR-95 | S4B | | (99724:95) |
| 6172-002 CLP FORMS | 200093964 | | | Water | 16-SEP-94 11:00 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-002 |
| 1 | | AW - Amber Glass-128oz | HERB/8150/04 | | S COLD | 19-OCT-94 | 23-SEP-94 | S4B | | (99725:100) |
| 6172-002MS CLP FORMS | 200093964 | | | Water | 16-SEP-94 11:00 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-002 |
| 1 | | AW - Amber Glass-128oz | HERB/8150/04 | | S COLD | 19-OCT-94 | 23-SEP-94 | S4B | | (99725:100) |
| 6172-002MSD CLP FORMS | 200093964 | | | Water | 16-SEP-94 11:00 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-002 |
| 1 | | AW - Amber Glass-128oz | HERB/8150/04 | | S COLD | 19-OCT-94 | 23-SEP-94 | S4B | | (99725:100) |
| 6172-003 CLP FORMS | 200093965 | | | Water | 16-SEP-94 11:00 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-003 |
| 1 | | AW - Amber Glass-128oz | BNA/8270/04 | | S COLD | 19-OCT-94 | 23-SEP-94 | S4B | | (99729:100) |
| 6172-003MS CLP FORMS | 200093965 | | | Water | 16-SEP-94 11:00 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-003 |
| 1 | | AW - Amber Glass-128oz | BNA/8270/04 | | S COLD | 19-OCT-94 | 23-SEP-94 | S4B | | (99729:100) |

3*=Sample has not been rad screened.



000285
00021L1

Quanterra October 06, 1994 04:14 pm
Account: 10872 Project: 500.01 Fernald Env. Restoration Mgt. Corp. QAS No. 500 Rev. 2
Master Sample Login: 6172

Project Manager: R. White

Draft: Final: Entered and Reviewed by:_____ PM Review:_____

Sample Header Template: _____

| Sample No. / # | Client ID / Container Type | C-Matrix / Analysis | Date: Collected / Class | Received / Preservative | Due / Anal. Due Date | Shipper / Hold Date | Site | Rad Category / (Container Numbers:% Filled) | Rad Sample No. |
|---|---|---|---|---|---|---|---|---|---|
| 6172-003MSD | 200093965 | Water | 16-SEP-94 11:00 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | | 3* | R2865-003 |
| CLP FORMS | | | | | | | | | |
| 1 | AW - Amber Glass-128oz | BNA/8270/94 | S | COLD | 19-OCT-94 | 23-SEP-94 | S4B | (99729:100) | |
| 6172-004 | 200093966 | Water | 16-SEP-94 11:00 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | | 3* | R2865-004 |
| CLP FORMS - Compounds added - See memo | | | | | | | | | |
| 1 | VI - Vial-40ml | VOA/8240/94 | S | HCL | 19-OCT-94 | 30-SEP-94 | 109M | (99728:100) | |
| 6172-005 | 200093969 | Water | 16-SEP-94 11:00 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | | 3* | R2865-005 |
| CLP FORMS | | | | | | | | | |
| 1 | VI - Vial-40ml | PCB/8080/94 | S | HCL | 19-OCT-94 | 23-SEP-94 | S4B | (99730:100) | |
| 6172-005MS | 200093969 | Water | 16-SEP-94 11:00 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | | 3* | R2865-005 |
| CLP FORMS | | | | | | | | | |
| 1 | VI - Vial-40ml | PCB/8080/94 | S | HCL | 19-OCT-94 | 23-SEP-94 | S4B | (99730:100) | |
| 6172-005MSD | 200093969 | Water | 16-SEP-94 11:00 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | | 3* | R2865-005 |
| CLP FORMS | | | | | | | | | |
| 1 | VI - Vial-40ml | PCB/8080/94 | S | HCL | 19-OCT-94 | 23-SEP-94 | S4B | (99730:100) | |
| 6172-006 | 200093997 | Water | 16-SEP-94 09:30 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | | 3* | R2865-006 |
| CLP FORMS - Compounds added - See memo | | | | | | | | | |
| 1 | VI - Vial-40ml | RAD/SCREEN/94 | S | HCL | 19-OCT-94 | 20-MAR-95 | S4B | (99733:98) | |
| 2 | | VOA/8240/94 | S | HCL | 19-OCT-94 | 30-SEP-94 | 109M | (99731:100 99732:99) | |
| 6172-007 | 200093999 | Solid | 16-SEP-94 10:45 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | | 3* | R2865-007 |
| CLP FORMS | | | | | | | | | |
| 1 | GM - Glass Jar-250ML | EXTMETAL/TCLP/94 | S | COLD | 19-OCT-94 | 14-OCT-94 | S4B | (99737:85) | |
| 1 | | HG/7470/94 | S | COLD | 19-OCT-94 | 14-OCT-94 | S4B | (99737:85) | |
| 1 | | HG/TCLP/94 | S | COLD | 19-OCT-94 | 25-OCT-94 | S4B | (99737:85) | |
| 1 | | ICAP/6010/94 | S | COLD | 19-OCT-94 | 15-MAR-95 | S4B | (99737:85) | |
| 1 | | ICAP/TCLP/94 | S | COLD | 19-OCT-94 | 26-MAR-95 | S4B | (99737:85) | |
| 1 | | PM/IT/94 | S | COLD | 19-OCT-94 | 15-MAR-95 | S4B | (99737:85) | |
| 1 | | RAD/SCREEN/94 | S | COLD | 19-OCT-94 | 20-MAR-95 | S4B | (99737:85) | |

3*=Sample has not been rad screened.

Quanterra October 06, 1994 04:14 pm
Account: 10872 Project: 500.01 Fernald Env. Restoration Mgt. Corp. QAS No. 500 Rev. 2
Master Sample Login: 6172

Project Manager: R. White

Draft: Final: Entered and Reviewed by:_____ PM Review:_____

Sample Header Template: _____

| Sample No. / Comments / # Container Type / Date: | Client ID | C-Matrix | Date: Collected | Received | Due | Shipper | Rad Category | Rad Sample No. |
|---|---|---|---|---|---|---|---|---|
| | | Analysis | Class | Preservative | Anal. Due Date | Hold Date | Site | (Container Numbers:% Filled) |
| 6172-007DUP | 200093999 | Solid | 16-SEP-94 10:45 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-007 |
| CLP FORMS | | | | | | | | |
| 1 GN - Glass Jar-250ML | EXTMETAL/TCLP/04 | | S | COLD | 19-OCT-94 | 14-OCT-94 | S4B | (99737:85) |
| 1 | HG/TCLP/04 | | S | COLD | 19-OCT-94 | 25-OCT-94 | S4B | (99737:85) |
| 1 | ICAP/TCLP/04 | | S | COLD | 19-OCT-94 | 26-MAR-95 | S4B | (99737:85) |
| 6172-007MS | 200093999 | Solid | 16-SEP-94 10:45 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-007 |
| CLP FORMS | | | | | | | | |
| 1 GN - Glass Jar-250ML | EXTMETAL/TCLP/04 | | S | COLD | 19-OCT-94 | 14-OCT-94 | S4B | (99737:85) |
| 1 | HG/TCLP/04 | | S | COLD | 19-OCT-94 | 25-OCT-94 | S4B | (99737:85) |
| 1 | ICAP/TCLP/04 | | S | COLD | 19-OCT-94 | 26-MAR-95 | S4B | (99737:85) |
| 6172-008 | 200094000 | Solid | 16-SEP-94 10:45 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-008 |
| CLP FORMS | | | | | | | | |
| 1 AM - Amber Glass-120ML | HERB/8150/04 | | S | COLD | 19-OCT-94 | 30-SEP-94 | S4B | (99738:60) |
| 1 | PM/IT/04 | | S | COLD | 19-OCT-94 | 15-MAR-95 | S4B | (99738:60) |
| 6172-008MS | 200094000 | Solid | 16-SEP-94 10:45 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-008 |
| CLP FORMS | | | | | | | | |
| 1 AM - Amber Glass-120ML | HERB/8150/04 | | S | COLD | 19-OCT-94 | 30-SEP-94 | S4B | (99738:60) |
| 6172-008MSD | 200094000 | Solid | 16-SEP-94 10:45 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-008 |
| CLP FORMS | | | | | | | | |
| 1 AM - Amber Glass-120ML | HERB/8150/04 | | S | COLD | 19-OCT-94 | 30-SEP-94 | S4B | (99738:60) |
| 6172-009 | 200094001 | Solid | 16-SEP-94 10:45 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-009 |
| CLP FORMS | | | | | | | | |
| 1 AM - Amber Glass-120ML | BNA/8270/04 | | S | COLD | 19-OCT-94 | 30-SEP-94 | S4B | (99739:60) |
| 1 | PM/IT/04 | | S | COLD | 19-OCT-94 | 15-MAR-95 | S4B | (99739:60) |
| 6172-009MS | 200094001 | Solid | 16-SEP-94 10:45 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-009 |
| CLP FORMS | | | | | | | | |
| 1 AM - Amber Glass-120ML | BNA/8270/04 | | S | COLD | 19-OCT-94 | 30-SEP-94 | S4B | (99739:60) |

3*=Sample has not been rad screened.



000287

007211

Quanterra October 06, 1994 04:14 pm
Account: 10872 Project: 500.01 Fernald Env. Restoration Mgt. Corp. QAS No. 500 Rev. 2
Master Sample Login: 6172

Project Manager: R. White

Draft: Final: Entered and Reviewed by:_____ PM Review:_____

Sample Header Template: _____

| Sample No. / Comments / # Container Type / Date: | Client ID | C-Matrix | Date: Collected | Received | Due | Shipper | Rad Category | Rad Sample No. (Container Numbers:% Filled) |
|---|---|---|---|---|---|---|---|---|
| 6172-009MSD / CLP FORMS | 200094001 | Solid | 16-SEP-94 10:45 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-009 |
| 1 AM - Amber Glass-120ML | BNA/8270/94 | | S COLD | 19-OCT-94 | 30-SEP-94 | S4B | | (99739:60) |
| 6172-010 / CLP FORMS - Compounds added - See memo | 200094002 | Solid | 16-SEP-94 10:45 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-010 |
| 1 AM - Amber Glass-120ML | PM/IT/94 | | S COLD | 19-OCT-94 | 15-MAR-95 | 109M | | (99740:70) |
| 1 | VOA/8240/94 | | S COLD | 19-OCT-94 | 30-SEP-94 | 109M | | (99740:70) |
| 6172-010MS / CLP FORMS | 200094002 | Solid | 16-SEP-94 10:45 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-010 |
| 1 AM - Amber Glass-120ML | VOA/8240/94 | | S COLD | 19-OCT-94 | 30-SEP-94 | 109M | | (99740:70) |
| 6172-010MSD / CLP FORMS | 200094002 | Solid | 16-SEP-94 10:45 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-010 |
| 1 AM - Amber Glass-120ML | VOA/8240/94 | | S COLD | 19-OCT-94 | 30-SEP-94 | 109M | | (99740:70) |
| 6172-011 / CLP FORMS | 200094005 | Solid | 16-SEP-94 10:45 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-011 |
| 1 AM - Amber Glass-120ML | PCB/8080/94 | | S COLD | 19-OCT-94 | 30-SEP-94 | S4B | | (99741:60) |
| 1 | PM/IT/94 | | S COLD | 19-OCT-94 | 15-MAR-95 | S4B | | (99741:60) |
| 6172-011MS / CLP FORMS | 200094005 | Solid | 16-SEP-94 10:45 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-011 |
| 1 AM - Amber Glass-120ML | PCB/8080/94 | | S COLD | 19-OCT-94 | 30-SEP-94 | S4B | | (99741:60) |
| 6172-011MSD / CLP FORMS | 200094005 | Solid | 16-SEP-94 10:45 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-011 |
| 1 AM - Amber Glass-120ML | PCB/8080/94 | | S COLD | 19-OCT-94 | 30-SEP-94 | S4B | | (99741:60) |
| 6172-012 / CLP FORMS | 200094007 | Solid | 16-SEP-94 10:55 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-012 |
| 1 GM - Glass Jar-250ML | HG/7470/94 | | S COLD | 19-OCT-94 | 14-OCT-94 | S4B | | (99742:80) |
| 1 | ICAP/6010/94 | | S COLD | 19-OCT-94 | 15-MAR-95 | S4B | | (99742:80) |
| 1 | PM/IT/94 | | S COLD | 19-OCT-94 | 15-MAR-95 | S4B | | (99742:80) |

3*=Sample has not been rad screened.

Quanterra October 06, 1994 04:14 pm
Account: 10872 Project: 500.01 Fernald Env. Restoration Mgt. Corp. QAS No. 500 Rev. 2
Master Sample Login: 6172

Project Manager: R. White

Draft: Final: Entered and Reviewed by:_____ PM Review:_____

Sample Header Template: _____

| Sample No. / Comments / # / Container Type | Client ID | Analysis | C-Matrix | Date: Collected | Received | Due | Shipper | Rad Category | Rad Sample No. |
|---|---|---|---|---|---|---|---|---|---|
| Date: | | | | Class | Preservative | Anal. Due Date | Hold Date | Site | (Container Numbers:% Filled) |
| 1 | | RAD/SCREEN/04 | | S | COLD | 19-OCT-94 | 20-MAR-95 | S4B | (99742:80) |
| 6172-012DUP | 200094007 | | Solid | 16-SEP-94 10:55 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-012 |
| CLP FORMS | | | | | | | | | |
| 1 GN - Glass Jar-250ML | | HG/7470/04 | | S | COLD | 19-OCT-94 | 14-OCT-94 | S4B | (99742:80) |
| 1 | | ICAP/6010/04 | | S | COLD | 19-OCT-94 | 15-MAR-95 | S4B | (99742:80) |
| 6172-012MS | 200094007 | | Solid | 16-SEP-94 10:55 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-012 |
| CLP FORMS | | | | | | | | | |
| 1 GN - Glass Jar-250ML | | HG/7470/04 | | S | COLD | 19-OCT-94 | 14-OCT-94 | S4B | (99742:80) |
| 1 | | ICAP/6010/04 | | S | COLD | 19-OCT-94 | 15-MAR-95 | S4B | (99742:80) |
| 6172-013 | 200094008 | | Solid | 16-SEP-94 10:55 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-013 |
| CLP FORMS | | | | | | | | | |
| 1 GN - Glass Jar-120ML | | HERB/8150/04 | | S | COLD | 19-OCT-94 | 30-SEP-94 | S4B | (99743:50) |
| 1 | | PM/IT/04 | | S | COLD | 19-OCT-94 | 15-MAR-95 | S4B | (99743:50) |
| 6172-014 | 200094010 | | Solid | 16-SEP-94 10:55 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-014 |
| CLP FORMS | | | | | | | | | |
| 1 GN - Glass Jar-120ML | | PM/IT/04 | | S | COLD | 19-OCT-94 | 15-MAR-95 | 109M | (99744:50) |
| 1 | | VOA/TCLP/04 | | S | COLD | 19-OCT-94 | 07-OCT-94 | 109M | (99744:50) |
| 1 | | ZERO/TCLP/04 | | S | COLD | 19-OCT-94 | 30-SEP-94 | 109M | (99744:50) |
| 6172-014MS | 200094010 | | Solid | 16-SEP-94 10:55 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-014 |
| CLP FORMS | | | | | | | | | |
| 1 GN - Glass Jar-120ML | | VOA/TCLP/04 | | S | COLD | 19-OCT-94 | 07-OCT-94 | 109M | (99744:50) |
| 1 | | ZERO/TCLP/04 | | S | COLD | 19-OCT-94 | 30-SEP-94 | 109M | (99744:50) |
| 6172-014MSD | 200094010 | | Solid | 16-SEP-94 10:55 | 21-SEP-94 09:00 | 21-OCT-94 | FED-EX | 3* | R2865-014 |
| CLP FORMS | | | | | | | | | |
| 1 GN - Glass Jar-120ML | | VOA/TCLP/04 | | S | COLD | 19-OCT-94 | 07-OCT-94 | 109M | (99744:50) |
| 1 | | ZERO/TCLP/04 | | S | COLD | 19-OCT-94 | 30-SEP-94 | 109M | (99744:50) |

3*=Sample has not been rad screened.



000289

002211

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

SOW No.: SW846

| EPA Sample No. | Lab Sample ID |
|---|---|
| 200093963 | 6172-001 |
| 200093963D | 6172-001D |
| 200093963S | 6172-001S |
| 200093999 | 6172-007 |
| 200094007 | 6172-012 |
| 200094007D | 6172-012D |
| 200094007S | 6172-012S |

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Kathy R. Giacopelli for Robert E. Name: KATHY R. GIACOPELLI FOR ROBERT E

Date: 11-9-94 Title: PROJECT ASST / PROJECT MAN.

U.S. EPA - CLP

007211

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

200093963

) Name: ITAS_ST._LOUIS  Contract: 500.01

) Code: ITMO  Case No.:  SAS No.:  SDG No.: 3975

:rix (soil/water): WATER  Lab Sample ID: 6172-001

/el (low/med):  Date Received: 09/21/94

;olids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic | 52.8 | U | | P |
| 7440-39-3 | Barium | 0.69 | B | | P |
| 7440-43-9 | Cadmium | 3.7 | U | | P |
| 7440-47-3 | Chromium | 3.4 | U | | P |
| 7439-92-1 | Lead | 42.3 | U | | P |
| 7439-97-6 | Mercury | 0.10 | U | N | CV |
| 7782-49-2 | Selenium | 61.4 | U | | P |
| 7440-22-4 | Silver | 3.7 | U | | P |

lor Before:  Clarity Before:  Texture:

lor After:  Clarity After:  Artifacts:

nments:

FORM I - IN

SW-846

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

200093999

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: 3975_____

Matrix (soil/water): SOIL_ Lab Sample ID: 6172-007

Level (low/med): _____ Date Received: 09/21/94

% Solids: _93.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic | 28.4 | U | | P |
| 7440-39-3 | Barium | 54.6 | | | P |
| 7440-43-9 | Cadmium | 14.5 | | | P |
| 7440-47-3 | Chromium | 180 | | * | P |
| 7439-92-1 | Lead | 424 | | * | P |
| 7439-97-6 | Mercury | 0.08 | B | | CV |
| 7782-49-2 | Selenium | 33.0 | U | | P |
| 7440-22-4 | Silver | 2.0 | U | N | P |

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

FORM I - IN

SW-846

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

200094007

ab Name: ITAS ST. LOUIS  Contract: 500.01
ab Code: ITMO  Case No.:  SAS No.:  SDG No.: 3975
atrix (soil/water): SOIL  Lab Sample ID: 6172-012
evel (low/med):  Date Received: 09/21/94
Solids: 89.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic | 5.9 | U | | P |
| 7440-39-3 | Barium | 40.9 | | | P |
| 7440-43-9 | Cadmium | 8.2 | | | P |
| 7440-47-3 | Chromium | 495 | | * | P |
| 7439-92-1 | Lead | 296 | | * | P |
| 7439-97-6 | Mercury | 0.06 | U | | CV |
| 7782-49-2 | Selenium | 6.8 | U | | P |
| 7440-22-4 | Silver | 0.41 | U | N | P |

lor Before:  Clarity Before:  Texture:
lor After:  Clarity After:  Artifacts:

mments:

FORM I - IN

SW-846

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Initial Calibration Source: SOL+/LL/SPX_

Continuing Calibration Source: SOL+/LL/SPX_

Concentration Units: ug/L

| Analyte | Initial Calibration True | Initial Calibration Found | Initial Calibration %R(1) | Continuing Calibration True | Continuing Calibration Found | Continuing Calibration %R(1) | Continuing Calibration Found | Continuing Calibration %R(1) | M |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 4000.0 | 3922.42 | 98.1 | 4000.0 | 3818.96 | 95.5 | 3960.62 | 99.0 | P |
| Barium | 4000.0 | 3822.03 | 95.6 | 4000.0 | 3692.48 | 92.3 | 3909.52 | 97.7 | P |
| Cadmium | 4000.0 | 3762.92 | 94.1 | 4000.0 | 3647.28 | 91.2 | 3839.00 | 96.0 | P |
| Chromium | 4000.0 | 3743.95 | 93.6 | 4000.0 | 3642.83 | 91.1 | 3800.40 | 95.0 | P |
| Lead | 4000.0 | 3771.13 | 94.3 | 4000.0 | 3673.48 | 91.8 | 3832.75 | 95.8 | P |
| Mercury | 6.0 | 5.78 | 96.3 | 4.0 | 3.69 | 92.2 | 3.41 | 85.2 | CV |
| Selenium | 4000.0 | 3769.21 | 94.2 | 4000.0 | 3636.20 | 90.9 | 3780.39 | 94.5 | P |
| Silver | 1000.0 | 953.89 | 95.4 | 1000.0 | 922.33 | 92.2 | 971.28 | 97.1 | P |

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

SW-846

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

.b Name: ITAS_ST._LOUIS_____ Contract: 500.01____

.b Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

ıitial Calibration Source: SOL+/LL/SPX_

ntinuing Calibration Source: SOL+/LL/SPX_

Concentration Units: ug/L

| nalyte | Initial Calibration True | Initial Calibration Found | Initial Calibration %R(1) | Continuing Calibration True | Continuing Calibration Found | Continuing Calibration %R(1) | Continuing Calibration Found | Continuing Calibration %R(1) | M |
|---|---|---|---|---|---|---|---|---|---|
| rsenic | | | | | | | | | NR |
| arium | | | | | | | | | NR |
| admium | | | | | | | | | NR |
| hromium | | | | | | | | | NR |
| ead | | | | | | | | | NR |
| ercury | | | | 4.0 | 3.61 | 90.2 | 3.97 | 99.2 | CV |
| elenium | | | | | | | | | NR |
| ilver | | | | | | | | | NR |

.) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

SW-846

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Initial Calibration Source: SOL+/LL/SPX_

Continuing Calibration Source: SOL+/LL/SPX_

Concentration Units: ug/L

| Analyte | Initial Calibration True | Initial Calibration Found | Initial Calibration %R(1) | Continuing Calibration True | Continuing Calibration Found | Continuing Calibration %R(1) | Continuing Calibration Found | Continuing Calibration %R(1) | M |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 4000.0 | 4003.56 | 100.1 | 4000.0 | 3990.09 | 99.8 | 3956.96 | 98.9 | P |
| Barium | 4000.0 | 3903.21 | 97.6 | 4000.0 | 3881.96 | 97.0 | 3902.64 | 97.6 | P |
| Cadmium | 4000.0 | 3835.30 | 95.9 | 4000.0 | 3803.96 | 95.1 | 3842.97 | 96.1 | P |
| Chromium | 4000.0 | 3836.83 | 95.9 | 4000.0 | 3771.62 | 94.3 | 3804.91 | 95.1 | P |
| Lead | 4000.0 | 3851.49 | 96.3 | 4000.0 | 3790.[illegible] | 94.8 | 3833.19 | 95.8 | P |
| Mercury | 6.0 | 6.00 | 100.0 | 4.0 | 3.[illegible] | 90.5 | 3.57 | 89.2 | CV |
| Selenium | 4000.0 | 3856.79 | 96.4 | 4000.0 | 3800.16 | 95.0 | 3830.14 | 95.8 | P |
| Silver | 1000.0 | 974.55 | 97.5 | 1000.0 | 969.60 | 97.0 | 975.23 | 97.5 | P |

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

SW-846

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Initial Calibration Source: SOL+/LL/SPX_

Continuing Calibration Source: SOL+/LL/SPX_

Concentration Units: ug/L

| Analyte | Initial Calibration True | Initial Calibration Found | Initial Calibration %R(1) | Continuing Calibration True | Continuing Calibration Found | Continuing Calibration %R(1) | Continuing Calibration Found | Continuing Calibration %R(1) | M |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | | | | 4000.0 | 4020.20 | 100.5 | 3944.05 | 98.6 | P |
| Barium | | | | 4000.0 | 3938.40 | 98.5 | | | P |
| Cadmium | | | | 4000.0 | 3855.41 | 96.4 | 3848.52 | 96.2 | P |
| Chromium | | | | 4000.0 | 3843.26 | 96.1 | 3829.26 | 95.7 | P |
| Lead | | | | 4000.0 | 3877.39 | 96.9 | | | P |
| Mercury | | | | | | | | | NR |
| Selenium | | | | 4000.0 | 3841.53 | 96.0 | 3916.08 | 97.9 | P |
| Silver | | | | 1000.0 | 980.10 | 98.0 | 977.73 | 97.8 | P |

1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

SW-846

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Initial Calibration Source: SOL+/LL/SPX_

Continuing Calibration Source: SOL+/LL/SPX_

Concentration Units: ug/L

| Analyte | Initial Calibration True | Initial Calibration Found | Initial Calibration %R(1) | Continuing Calibration True | Continuing Calibration Found | Continuing Calibration %R(1) | Continuing Calibration Found | Continuing Calibration %R(1) | M |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | | | | | | | | | NF |
| Barium | | | | | | | | | NF |
| Cadmium | | | | | | | | | NF |
| Chromium | | | | | | | | | NF |
| Lead | | | | | | | | | NF |
| Mercury | 6.0 | 5.81 | 96.8 | 4.0 | 3.77 | 94.2 | 3.88 | 97.0 | CV |
| Selenium | | | | | | | | | NF |
| Silver | | | | | | | | | NF |

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

SW-846

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Initial Calibration Source: SOL+/LL/SPX_

Continuing Calibration Source: SOL+/LL/SPX_

Concentration Units: ug/L

| Analyte | Initial Calibration True | Initial Calibration Found | Initial Calibration %R(1) | Continuing Calibration True | Continuing Calibration Found | Continuing Calibration %R(1) | Continuing Calibration Found | Continuing Calibration %R(1) | M |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | | | | | | | | | NR |
| Barium | | | | | | | | | NR |
| Cadmium | | | | | | | | | NR |
| Chromium | | | | | | | | | NR |
| Lead | | | | | | | | | NR |
| Mercury | | | | 4.0 | 3.80 | 95.0 | | | CV |
| Selenium | | | | | | | | | NR |
| Silver | | | | | | | | | NR |

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

SW-846

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Initial Calibration Source: SOL+/LL/SPX_

Continuing Calibration Source: SOL+/LL/SPX_

Concentration Units: ug/L

| Analyte | Initial Calibration True | Initial Calibration Found | Initial Calibration %R(1) | Continuing Calibration True | Continuing Calibration Found | Continuing Calibration %R(1) | Continuing Calibration Found | Continuing Calibration %R(1) |
|---|---|---|---|---|---|---|---|---|
| Arsenic | | | | | | | | |
| Barium | | | | | | | | |
| Cadmium | | | | | | | | |
| Chromium | | | | | | | | |
| Lead | | | | | | | | |
| Mercury | 6.0 | 5.81 | 96.8 | 4.0 | 3.89 | 97.2 | 3.85 | 96.2 |
| Selenium | | | | | | | | |
| Silver | | | | | | | | |

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

SW-84

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

AA CRDL Standard Source: SPEX/SOL+/LL

ICP CRDL Standard Source: SPEX/SOLNS P

Concentration Units: ug/L

| Analyte | CRDL Standard for AA | | | CRDL Standard for ICP | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Initial | | Final | |
| | True | Found | %R | True | Found | %R | Found | %R |
| Arsenic | | | | | | | | |
| Barium | | | | | | | | |
| Cadmium | | | | | | | | |
| Chromium | | | | | | | | |
| Lead | | | | | | | | |
| Mercury | 0.2 | 0.10 | 50.0 | | | | | |
| Selenium | | | | | | | | |
| Silver | | | | | | | | |

FORM II (PART 2) - IN

SW-846

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

AA CRDL Standard Source: SPEX/SOL+/LL

ICP CRDL Standard Source: SPEX/SOLNS P

Concentration Units: ug/L

| Analyte | CRDL Standard for AA | | | CRDL Standard for ICP | | | | |
|---|---|---|---|---|---|---|---|---|
| | True | Found | %R | True | Initial Found | %R | Final Found | %R |
| Arsenic | | | | | | | | |
| Barium | | | | | | | | |
| Cadmium | | | | | | | | |
| Chromium | | | | | | | | |
| Lead | | | | | | | | |
| Mercury | 0.2 | 0.10 | 50.0 | | | | | |
| Selenium | | | | | | | | |
| Silver | | | | | | | | |

FORM II (PART 2) - IN

SW-846

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

AA CRDL Standard Source: SPEX/SOL+/LL

ICP CRDL Standard Source: SPEX/SOLNS P

Concentration Units: ug/L

| Analyte | CRDL Standard for AA | | | CRDL Standard for ICP | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Initial | | Final | |
| | True | Found | %R | True | Found | %R | Found | %R |
| Arsenic | | | | | | | | |
| Barium | | | | | | | | |
| Cadmium | | | | | | | | |
| Chromium | | | | | | | | |
| Lead | | | | | | | | |
| Mercury | 0.2 | 0.04 | 20.0 | | | | | |
| Selenium | | | | | | | | |
| Silver | | | | | | | | |

FORM II (PART 2) - IN

SW-846

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

AA CRDL Standard Source: SPEX/SOL+/LL

ICP CRDL Standard Source: SPEX/SOLNS P

Concentration Units: ug/L

| Analyte | CRDL Standard for AA | | | CRDL Standard for ICP | | | | |
|---|---|---|---|---|---|---|---|---|
| | True | Found | %R | True | Initial Found | %R | Final Found | %R |
| Arsenic | | | | | | | | |
| Barium | | | | | | | | |
| Cadmium | | | | | | | | |
| Chromium | | | | | | | | |
| Lead | | | | | | | | |
| Mercury | 0.2 | 0.04 | 20.0 | | | | | |
| Selenium | | | | | | | | |
| Silver | | | | | | | | |

FORM II (PART 2) - IN

SW-846

U.S. EPA - CLP

3
BLANKS

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

| Analyte | Initial Calib. Blank (ug/L) | C | Continuing Calibration Blank (ug/L) 1 | C | 2 | C | 3 | C | Prepa-ration Blank | C | M |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 52.8 | U | 52.8 | U | 52.8 | U | | | 52.800 | U | P |
| Barium | 0.7 | B | 1.8 | B | 1.5 | B | | | 0.400 | U | P |
| Cadmium | 3.7 | U | 3.7 | U | 3.7 | U | | | 3.700 | U | P |
| Chromium | 3.4 | U | 3.4 | U | 3.4 | U | | | 3.400 | U | P |
| Lead | 42.3 | U | 42.3 | U | 42.3 | U | | | 42.300 | U | P |
| Mercury | 0.1 | U | 0.1 | U | -0.1 | B | 0.1 | U | 0.100 | U | CV |
| Selenium | 61.4 | U | 61.4 | U | 61.4 | U | | | 61.400 | U | P |
| Silver | 3.7 | U | 3.7 | U | 3.7 | U | | | 3.700 | U | P |

FORM III - IN

SW-846

U.S. EPA - CLP

3
BLANKS

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Preparation Blank Matrix (soil/water): SOIL_

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

| Analyte | Initial Calib. Blank (ug/L) | C | Continuing Calibration Blank (ug/L) 1 | C | 2 | C | 3 | C | Prepa-ration Blank | C |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 52.8 | U | 52.8 | U | 52.8 | U | 52.8 | U | 5.280 | U |
| Barium | 4.2 | B | 1.0 | B | 1.0 | B | 1.3 | B | 0.040 | U |
| Cadmium | 3.7 | U | 3.7 | U | 3.7 | U | 3.7 | U | 0.370 | U |
| Chromium | 3.4 | U | 3.4 | U | 3.4 | U | 3.4 | U | 0.340 | U |
| Lead | 42.3 | U | 42.3 | U | 42.3 | U | 44.2 | B | 4.230 | U |
| Mercury | | | 0.1 | U | | | | | | |
| Selenium | 61.4 | U | 61.4 | U | 61.4 | U | 61.4 | U | 6.140 | U |
| Silver | 3.7 | U | 3.7 | U | 3.7 | U | 3.7 | U | 0.370 | U |

FORM III - IN

SW-84

U.S. EPA - CLP

3
BLANKS

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

| Analyte | Initial Calib. Blank (ug/L) | C | Continuing Calibration Blank (ug/L) 1 | C | 2 | C | 3 | C | Prepa-ration Blank | C | M |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | | | 52.8 | U | | | | | | | P |
| Barium | | | | | | | | | | | NR |
| Cadmium | | | 3.8 | B | | | | | | | P |
| Chromium | | | 3.4 | U | | | | | | | P |
| Lead | | | | | | | | | | | NR |
| Mercury | 0.1 | U | 0.1 | U | 0.1 | B | | | 0.100 | U | CV |
| Selenium | | | 61.4 | U | | | | | | | P |
| Silver | | | 3.7 | U | | | | | | | P |

FORM III - IN

SW-846

U.S. EPA - CLP

3
BLANKS

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Preparation Blank Matrix (soil/water): SOIL_

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

| Analyte | Initial Calib. Blank (ug/L) | C | Continuing Calibration Blank (ug/L) 1 | C | 2 | C | 3 | C | Prepa-ration Blank | C | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | | | | | | | | | | | N |
| Barium | | | | | | | | | | | N |
| Cadmium | | | | | | | | | | | N |
| Chromium | | | | | | | | | | | N |
| Lead | | | | | | | | | | | N |
| Mercury | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.050 | U | C |
| Selenium | | | | | | | | | | | N |
| Silver | | | | | | | | | | | N |

FORM III - IN

SW-84

U.S. EPA - CLP

3
BLANKS

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

| Analyte | Initial Calib. Blank (ug/L) | C | Continuing Calibration Blank (ug/L) 1 | C | 2 | C | 3 | C | Prepa-ration Blank | C | M |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | | | | | | | | | | | NR |
| Barium | | | | | | | | | | | NR |
| Cadmium | | | | | | | | | | | NR |
| Chromium | | | | | | | | | | | NR |
| Lead | | | | | | | | | | | NR |
| Mercury | -0.3 | | 0.1 | U | 0.1 | U | | | | | CV |
| Selenium | | | | | | | | | | | NR |
| Silver | | | | | | | | | | | NR |

FORM III - IN

SW-846

U.S. EPA - CLP

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__Case No.: _____ SAS No: _____ SDG No.: 3975_____

ICP ID Number: TJA1100_____ ICS Source: SPEX/SOLPLUS

Concentration Units: ug/L

| Analyte | True Sol. A | True Sol. AB | Initial Found Sol. A | Initial Found Sol. AB | Initial Found %R | Final Found Sol. A | Final Found Sol. AB | Final Found %R |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 0 | 0 | -285 | -374.6 | | -402 | -298.1 | |
| Barium | 0 | 500 | 8 | 490.7 | 98.1 | 8 | 484.3 | 96. |
| Cadmium | 0 | 1000 | 3 | 947.0 | 94.7 | 3 | 939.3 | 93. |
| Chromium | 0 | 500 | -3 | 442.4 | 88.5 | -6 | 435.8 | 87. |
| Lead | 0 | 1000 | 8 | 902.4 | 90.2 | -27 | 906.2 | 90. |
| Mercury | | | | | | | | |
| Selenium | 0 | 0 | -63 | -155.0 | | -182 | -86.1 | |
| Silver | 0 | 1000 | -2 | 1000.6 | 100.1 | -3 | 990.0 | 99. |

FORM IV - IN

SW-846

U.S. EPA - CLP

4

ICP INTERFERENCE CHECK SAMPLE

ame: ITAS_ST._LOUIS_____ Contract: 500.01____

ode: ITMO__Case No.: _____ SAS No: _____ SDG No.: 3975_____

D Number: TJA1100_____ ICS Source: SPEX/SOLPLUS

Concentration Units: ug/L

| nalyte | True Sol. A | True Sol. AB | Initial Found Sol. A | Initial Found Sol. AB | Initial Found %R | Final Found Sol. A | Final Found Sol. AB | Final Found %R |
|---|---|---|---|---|---|---|---|---|
| senic | 0 | 0 | -210 | -242.4 | | -274 | -268.4 | |
| rium | 0 | 500 | 9 | 501.5 | 100.3 | 8 | 506.4 | 101.3 |
| dmium | 0 | 1000 | -2 | 960.0 | 96.0 | -3 | 949.7 | 95.0 |
| romium | 0 | 500 | -6 | 445.3 | 89. | -7 | 434.6 | 86.9 |
| ad | 0 | 1000 | -25 | 922.8 | 92. | -29 | 907.8 | 90.8 |
| rcury | | | | | | | | |
| lenium | 0 | 0 | -63 | -109.8 | | -178 | -121.6 | |
| lver | 0 | 1000 | -5 | 1013.8 | 101.4 | -3 | 1002.5 | 100.2 |

FORM IV - IN

SW-846

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

200093963S

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Matrix (soil/water): WATER_ Level (low/med): _____

% Solids for Sample: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

| Analyte | Control Limit %R | Spiked Sample Result (SSR) | C | Sample Result (SR) | C | Spike Added (SA) | %R | Q | M |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 75-125 | 1063.8500 | | 52.8000 | U | 1000.00 | 106.4 | | P |
| Barium | 75-125 | 2012.2300 | | 0.6900 | B | 2000.00 | 100.6 | | P |
| Cadmium | 75-125 | 49.5900 | | 3.7000 | U | 50.00 | 99.2 | | P |
| Chromium | 75-125 | 195.0600 | | 3.4000 | U | 200.00 | 97.5 | | P |
| Lead | 75-125 | 500.9500 | | 42.3000 | U | 500.00 | 100.2 | | P |
| Mercury | 75-125 | 0.4670 | | 0.1000 | U | 1.00 | 46.7 | N | CV |
| Selenium | 75-125 | 1006.5700 | | 61.4000 | U | 1000.00 | 100.7 | | P |
| Silver | 75-125 | 45.6100 | | 3.7000 | U | 50.00 | 91.2 | | P |

Comments:

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

200094007S

Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Matrix (soil/water): SOIL__ Level (low/med): _____

Solids for Sample: _89.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

| Analyte | Control Limit %R | Spiked Sample Result (SSR) | C | Sample Result (SR) | C | Spike Added (SA) | %R | Q | M |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 75-125 | 115.5862 | | 5.8732 | U | 111.23 | 103.9 | | P |
| Barium | 75-125 | 271.5818 | | 40.9143 | | 222.47 | 103.7 | | P |
| Beryllium | 75-125 | 14.9244 | | 8.1991 | | 5.56 | 121.0 | | P |
| Chromium | | 180.6096 | | 494.8810 | | 22.25 | -1412.5 | | P |
| Cobalt | | 414.8432 | | 296.3560 | | 55.62 | 213.0 | | P |
| Mercury | 75-125 | 0.5439 | | 0.0556 | U | 0.56 | 97.1 | | CV |
| Selenium | 75-125 | 103.1513 | | 6.8298 | U | 111.23 | 92.7 | | P |
| Silver | 75-125 | 3.5328 | | 0.4116 | U | 5.56 | 63.5 | N | P |

Comments:

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

200093963D

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No._____ SAS No._____ SDG No.: 3975_____

Matrix (soil/water): WATER Level (low/med): _____

% Solids for Sample: __0.0 % Solids for Duplicate: ___0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

| Analyte | Control Limit | Sample (S) | C | Duplicate (D) | C | RPD | Q | M |
|---|---|---|---|---|---|---|---|---|
| Arsenic | | 52.8000 | U | 52.8000 | U | | | P |
| Barium | | 0.6900 | B | 0.4200 | B | 48.6 | | P |
| Cadmium | | 3.7000 | U | 3.7000 | U | | | P |
| Chromium | | 3.4000 | U | 3.4000 | U | | | P |
| Lead | | 42.3000 | U | 42.3000 | U | | | P |
| Mercury | | 0.1000 | U | 0.1140 | B | 200.0 | | CV |
| Selenium | | 61.4000 | U | 61.4000 | U | | | P |
| Silver | | 3.7000 | U | 3.7000 | U | | | P |

FORM VI - IN

SW-846

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

200094007D

Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Code: ITMO__ Case No._____ SAS No._____ SDG No.: 3975_____

Matrix (soil/water): SOIL_ Level (low/med): _____

Solids for Sample: _89.9 % Solids for Duplicate: __89.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

| Analyte | Control Limit | Sample (S) | C | Duplicate (D) | C | RPD | Q | M |
|---|---|---|---|---|---|---|---|---|
| Arsenic | | 5.8732 | U | 5.8732 | U | | | P |
| Barium | 22.2 | 40.9143 | | 51.7475 | | 23.4 | | P |
| Cadmium | | 8.1991 | | 9.0456 | | 9.8 | | P |
| Chromium | | 494.8810 | | 277.6863 | | 56.2 | * | P |
| Lead | | 296.3560 | | 375.9499 | | 23.7 | * | P |
| Mercury | | 0.0556 | U | 0.1062 | B | 200.0 | | CV |
| Selenium | | 6.8298 | U | 6.8298 | U | | | P |
| Silver | | 0.4116 | U | 0.4116 | U | | | P |

FORM VI - IN

SW-846

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Solid LCS Source: _____

Aqueous LCS Source: SOLUTIONS PL

| Analyte | Aqueous (ug/L) True | Found | %R | Solid (mg/kg) True | Found | C | Limits | | %R |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 1000.0 | 1066.89 | 106.7 | | | | | | |
| Barium | 1000.0 | 976.34 | 97.6 | | | | | | |
| Cadmium | 1000.0 | 1003.44 | 100.3 | | | | | | |
| Chromium | 1000.0 | 964.95 | 96.5 | | | | | | |
| Lead | 1000.0 | 987.88 | 98.8 | | | | | | |
| Mercury | | | | | | | | | |
| Selenium | 1000.0 | 998.80 | 99.9 | | | | | | |
| Silver | 250.0 | 171.93 | 68.8 | | | | | | |

FORM VII - IN

SW-846

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Solid LCS Source: _____

Aqueous LCS Source: LEEMAN LABS_

| Analyte | Aqueous (ug/L) True | Found | %R | Solid (mg/kg) True | Found | C | Limits | | %R |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | | | | | | | | | |
| Barium | | | | | | | | | |
| Cadmium | | | | | | | | | |
| Chromium | | | | | | | | | |
| Lead | | | | | | | | | |
| Mercury | 3.0 | 3.08 | 102.7 | | | | | | |
| Selenium | | | | | | | | | |
| Silver | | | | | | | | | |

FORM VII - IN

SW-846

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Solid LCS Source: _____

Aqueous LCS Source: LEEMAN LABS_

| Analyte | Aqueous (ug/L) True | Found | %R | Solid (mg/kg) True | Found | C | Limits | | %R |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | | | | | | | | | |
| Barium | | | | | | | | | |
| Cadmium | | | | | | | | | |
| Chromium | | | | | | | | | |
| Lead | | | | | | | | | |
| Mercury | 3.0 | 2.84 | 94.7 | | | | | | |
| Selenium | | | | | | | | | |
| Silver | | | | | | | | | |

FORM VII - IN

SW-846

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

id LCS Source: ERA_____

eous LCS Source: _____

| alyte | Aqueous (ug/L) True | Found | %R | Solid (mg/kg) True | Found | C | Limits | | %R |
|---|---|---|---|---|---|---|---|---|---|
| senic | | | | 72.1 | 78.3 | | 35.0 | 110.0 | 108.6 |
| rium | | | | 64.8 | 68.3 | | 45.0 | 88.0 | 105.4 |
| dmium | | | | 61.6 | 69.0 | | 36.0 | 86.0 | 112.0 |
| romium | | | | 44.1 | 46.3 | | 26.0 | 61.0 | 105.0 |
| ad | | | | 50.9 | 52.6 | | 27.0 | 71.0 | 103.3 |
| rcury | | | | | | | | | |
| lenium | | | | 74.2 | 80.2 | | 36.0 | 108.0 | 108.1 |
| lver | | | | 71.7 | 82.5 | | 29.0 | 105.0 | 115.1 |

FORM VII - IN

SW-846

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Solid LCS Source: ERA_____

Aqueous LCS Source: _____

| Analyte | Aqueous (ug/L) True | Found | %R | Solid (mg/kg) True | Found | C | Limits | | %R |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | | | | | | | | | |
| Barium | | | | | | | | | |
| Cadmium | | | | | | | | | |
| Chromium | | | | | | | | | |
| Lead | | | | | | | | | |
| Mercury | | | | 4.8 | 3.2 | | 2.7 | 7.5 | 66. |
| Selenium | | | | | | | | | |
| Silver | | | | | | | | | |

FORM VII - IN

SW-846

U.S. EPA - CLP

8
STANDARD ADDITION RESULTS

Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Concentration Units: ug/L

| PA mple o. | An | 0 ADD ABS | 1 ADD CON | 1 ADD ABS | 2 ADD CON | 2 ADD ABS | 3 ADD CON | 3 ADD ABS | Final Conc. | r | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |

FORM VIII - IN SW-846

U.S. EPA - CLP

10
Instrument Detection Limits (Quarterly)

Lab Name: ITAS_ST._LOUIS
Lab Code: ITMO Case No.:
ICP ID Number: TJA1100
Flame AA ID Number :
Furnace AA ID Number :

Contract: 500.01
SAS No.: SDG No.: 3975
Date: 10/01/94

| Analyte | Wave-length (nm) | Back-ground | CRDL (ug/L) | IDL (ug/L) | M |
|---|---|---|---|---|---|
| Arsenic | 193.70 | | 500 | 52.8 | P |
| Barium | 455.40 | | 200 | 0.4 | P |
| Cadmium | 228.80 | | 5 | 3.7 | P |
| Chromium | 267.72 | | 20 | 3.4 | P |
| Lead | 220.35 | | 100 | 42.3 | P |
| Mercury | | | 0.2 | | NR |
| Selenium | 196.03 | | 250 | 61.4 | P |
| Silver | 328.07 | | 10 | 3.7 | P |

Comments:

FORM X - IN

SW-846

U.S. EPA - CLP

10
Instrument Detection Limits (Quarterly)

Lab Name: ITAS_ST._LOUIS
Lab Code: ITMO__ Case No.: _____
CLP ID Number: _____
Flame AA ID Number : PS200_____
Furnace AA ID Number : _____

Contract: 500.01____
SAS No.: _____ SDG No.: 3975_____
Date: 10/01/94

| Analyte | Wave-length (nm) | Back-ground | CRDL (ug/L) | IDL (ug/L) | M |
|---|---|---|---|---|---|
| Arsenic | | | 500 | | NR |
| Barium | | | 200 | | NR |
| Cadmium | | | 5 | | NR |
| Chromium | | | 20 | | NR |
| Lead | | | 100 | | NR |
| Mercury | 253.70 | | 0.2 | 0.1 | CV |
| Selenium | | | 250 | | NR |
| Silver | | | 10 | | NR |

Comments:

FORM X - IN

SW-846

U.S. EPA - CLP

11A

ICP Interelement Correction Factors (Annually)

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

ICP ID Number: TJA1100_____ Date: 10/04/94

| Analyte | Wave-length (nm) | Interelement Correction Factors for : Al | Ca | Fe | Mg | NA |
|---|---|---|---|---|---|---|
| Arsenic | 193.70 | 0.0071700 | 0.0000000 | 0.0006000 | -0.0007500 | 0.0000000 |
| Barium | 455.40 | 0.0000000 | 0.0000100 | 0.0000000 | 0.0000000 | 0.0000000 |
| Cadmium | 228.80 | 0.0000000 | 0.0000000 | 0.0000000 | 0.0000000 | 0.0000000 |
| Chromium | 267.72 | 0.0000110 | 0.0000000 | -0.0000200 | -0.0000140 | 0.0000000 |
| Lead | 220.35 | 0.0016600 | 0.0000000 | 0.0000000 | 0.0000000 | 0.0000000 |
| Mercury | | | | | | |
| Selenium | 196.03 | 0.0000000 | 0.0000000 | -0.0024200 | 0.0000500 | 0.0000000 |
| Silver | 328.07 | 0.0000000 | 0.0000080 | -0.0002750 | 0.0000000 | 0.0000100 |

Comments:

FORM XI (Part 1) - IN SW-846

U.S. EPA - CLP

11B
ICP Interelement Correction Factors (Annually)

Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

ID Number: TJA1100_____ Date: 10/04/94

| alyte | Wave-length (nm) | Interelement Correction Factors for : TH | U_ | __ | __ | __ |
|---|---|---|---|---|---|---|
| enic | 193.70 | -0.0000460 | 0.0028200 | | | |
| ium | 455.40 | 0.0003100 | 0.0000900 | | | |
| mium | 228.80 | 0.0000000 | -0.0001000 | | | |
| omium | 267.72 | -0.0015500 | -0.0040600 | | | |
| d | 220.35 | -0.0018000 | 0.0011700 | | | |
| cury | | | | | | |
| enium | 196.03 | -0.0033900 | 0.0002490 | | | |
| ver | 328.07 | -0.0019300 | 0.0015870 | | | |

ents:

FORM XI (Part 2) - IN SW-846

U.S. EPA - CLP

12
ICP LINEAR RANGES (QUARTERLY)

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

ICP ID Number:TJA1100_____ Date: 10/01/94

| Analyte | Integ. Time (sec.) | Concentration (ug/L) | M |
|---|---|---|---|
| Arsenic | 5.00 | 50000.0 | P |
| Barium | 5.00 | 100000.0 | P |
| Cadmium | 5.00 | 50000.0 | P |
| Chromium | 5.00 | 40000.0 | P |
| Lead | 5.00 | 40000.0 | P |
| Mercury | | | NR |
| Selenium | 5.00 | 100000.0 | P |
| Silver | 5.00 | 10000.0 | P |

Comments:

FORM XII - IN SW-846

U.S. EPA - CLP

13
PREPARATION LOG

b Name: ITAS_ST._LOUIS_____ Contract: 500.01____

b Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

thod: P_

| EPA Sample No. | Preparation Date | Weight (gram) | Volume (mL) |
|---|---|---|---|
| 200093963 | 10/04/94 | | 100 |
| 200093963D | 10/04/94 | | 100 |
| 200093963S | 10/04/94 | | 100 |
| LCSW47260 | 10/04/94 | | 100 |
| PBW47260 | 10/04/94 | | 100 |

FORM XIII - IN SW-846

U.S. EPA - CLP

13
PREPARATION LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Method: P_

| EPA Sample No. | Preparation Date | Weight (gram) | Volume (mL) |
|---|---|---|---|
| 200093999 | 10/04/94 | 1.00 | 100 |
| 200094007 | 10/04/94 | 1.00 | 100 |
| 200094007D | 10/04/94 | 1.00 | 100 |
| 200094007S | 10/04/94 | 1.00 | 100 |
| LCSS47221 | 10/04/94 | 1.00 | 100 |
| PBS47221 | 10/04/94 | 1.00 | 100 |

FORM XIII - IN SW-846

U.S. EPA - CLP

13
PREPARATION LOG

Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Md: CV

| EPA Sample No. | Preparation Date | Weight (gram) | Volume (mL) |
|---|---|---|---|
| 200093963 | 10/06/94 | | 100 |
| 200093963D | 10/06/94 | | 100 |
| 200093963S | 10/06/94 | | 100 |
| LCSW47445 | 10/06/94 | | 100 |
| PBW47445 | 10/06/94 | | 100 |

FORM XIII - IN SW-846

U.S. EPA - CLP

13
PREPARATION LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Method: CV

| EPA Sample No. | Preparation Date | Weight (gram) | Volume (mL) |
|---|---|---|---|
| 200093999 | 10/06/94 | 0.20 | 100 |
| 200094007 | 10/06/94 | 0.20 | 100 |
| 200094007D | 10/06/94 | 0.20 | 100 |
| 200094007S | 10/06/94 | 0.20 | 100 |
| LCSS47444 | 10/06/94 | 0.20 | 100 |
| PBS47444 | 10/06/94 | 0.20 | 100 |

FORM XIII - IN SW-846

U.S. EPA - CLP

13
PREPARATION LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Method: CV

| EPA Sample No. | Preparation Date | Weight (gram) | Volume (mL) |
|---|---|---|---|
| 200093963S | 10/12/94 | | 100 |
| LCSW47980 | 10/12/94 | | 100 |
| PBW47980 | 10/12/94 | | 100 |

FORM XIII - IN SW-846

U.S. EPA - CLP

14

ANALYSIS RUN LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Instrument ID Number: TJA1100_____ Method: P_

Start Date: 10/05/94 End Date: 10/05/94

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | | |
| S0 | 1.00 | 1106 | | X | X | X | X | X | _ | X | X | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| S | 1.00 | 1109 | | X | X | X | X | X | _ | X | X | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| S | 1.00 | 1112 | | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| S | 1.00 | 1114 | | | | | | | | | | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| S | 1.00 | 1117 | | X | X | X | X | X | _ | X | X | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| S | 1.00 | 1120 | | | | | | | | | | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| ICV | 1.00 | 1123 | | X | X | X | X | X | _ | X | X | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| ICB | 1.00 | 1126 | | X | X | X | X | X | _ | X | X | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| ICSA | 1.00 | 1129 | | X | X | X | X | X | _ | X | X | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| ICSAB | 1.00 | 1131 | | X | X | X | X | X | _ | X | X | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| PBW47260 | 1.00 | 1134 | | X | X | X | X | X | _ | X | X | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| LCSW47260 | 1.00 | 1137 | | X | X | X | X | X | _ | X | X | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| 200093963 | 1.00 | 1140 | | X | X | X | X | X | _ | X | X | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| 200093963S | 1.00 | 1143 | | X | X | X | X | X | _ | X | X | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| 200093963D | 1.00 | 1146 | | X | X | X | X | X | _ | X | X | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| ZZZZZZ | 1.00 | 1149 | | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| ZZZZZZ | 1.00 | 1152 | | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| ZZZZZZ | 1.00 | 1155 | | | | | | | | | | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| CCV | 1.00 | 1157 | | X | X | X | X | X | _ | X | X | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| CCB | 1.00 | 1200 | | X | X | X | X | X | _ | X | X | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| ZZZZZZ | 1.00 | 1203 | | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| ZZZZZZ | 1.00 | 1206 | | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| ZZZZZZ | 1.00 | 1209 | | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| ZZZZZZ | 1.00 | 1215 | | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| ZZZZZZ | 1.00 | 1218 | | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| ZZZZZZ | 1.00 | 1221 | | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| ZZZZZZ | 1.00 | 1224 | | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| ZZZZZZ | 1.00 | 1227 | | | | | | | | | | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| ICSA | 1.00 | 1235 | | X | X | X | X | X | _ | X | X | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| ICSAB | 1.00 | 1238 | | X | X | X | X | X | _ | X | X | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| CCV | 1.00 | 1241 | | X | X | X | X | X | _ | X | X | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| CCB | 1.00 | 1244 | | X | X | X | X | X | _ | X | X | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| | | | | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |

FORM XIV - IN

SW-846

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

rument ID Number: TJA1100_____ Method: P_

: Date: 10/05/94 End Date: 10/05/94

| EPA ample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | | |
| | 1.00 | 1522 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | | |
| | 1.00 | 1525 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | | |
| | 1.00 | 1528 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1.00 | 1530 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1.00 | 1533 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | | |
| | 1.00 | 1536 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1.00 | 1539 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | | |
| | 1.00 | 1542 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | | |
| A | 1.00 | 1545 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | | |
| AB | 1.00 | 1548 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | | |
| 47221 | 1.00 | 1551 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | | |
| S47221 | 1.00 | 1602 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1604 | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1607 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1.00 | 1610 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | | |
| | 1.00 | 1613 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | | |
| 093999 | 1.00 | 1616 | | | X | | | X | | | | | | | | | | | | | | | | | | |
| 094007 | 1.00 | 1619 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | | |
| 094007S | 1.00 | 1622 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | | |
| 094007D | 1.00 | 1625 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1627 | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1630 | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1633 | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1636 | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1639 | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1642 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1.00 | 1645 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | | |
| | 1.00 | 1648 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1650 | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 5.00 | 1653 | | | | | | | | | | | | | | | | | | | | | | | | |
| A | 1.00 | 1656 | | | X | | | X | | | | | | | | | | | | | | | | | | |
| AB | 1.00 | 1659 | | | X | | | X | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |

FORM XIV - IN SW-846

U.S. EPA - CLP

14

ANALYSIS RUN LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Instrument ID Number: TJA1100_____ Method: P_

Start Date: 10/05/94 End Date: 10/05/94

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 1702 | | X | X | X | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCB | 1.00 | 1705 | | X | X | X | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 200093999 | 5.00 | 1726 | | X | | X | X | | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ICSA | 1.00 | 1732 | | X | - | X | X | - | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ICSAB | 1.00 | 1735 | | X | - | X | X | - | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCV | 1.00 | 1738 | | X | - | X | X | - | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCB | 1.00 | 1741 | | X | - | X | X | - | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

FORM XIV - IN SW-846

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

rument ID Number: PS200_____ Method: CV

t Date: 10/07/94 End Date: 10/07/94

| EPA ample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | | | |
| | 1.00 | 1101 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| 5 | 1.00 | 1103 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 1.00 | 1106 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| | 1.00 | 1110 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| | 1.00 | 1112 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| | 1.00 | 1115 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| | 1.00 | 1118 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| | 1.00 | 1120 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| | 1.00 | 1123 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| | 1.00 | 1125 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| | 1.00 | 1128 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1132 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1134 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1139 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1141 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1143 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1146 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1148 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 20.0 | 1150 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1153 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1.00 | 1156 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| | 1.00 | 1158 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| ZZZ | 400 | 1201 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1204 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1.00 | 1206 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| | 1.00 | 1209 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| | 1.00 | 1243 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| 47444 | 1.00 | 1246 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| S47444 | 2.00 | 1250 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| ZZZ | 2.00 | 1252 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 093999 | 1.00 | 1255 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| 094007 | 1.00 | 1257 | | | | | | | X | | | | | | | | | | | | | | | | | | |

FORM XIV - IN SW-846

U.S. EPA - CLP

14

ANALYSIS RUN LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Instrument ID Number: PS200_____ Method: CV

Start Date: 10/07/94 End Date: 10/07/94

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | | |
| 200094007D | 1.00 | 1259 | | | | | | | X | | | | | | | | | | | | | | | | | |
| 200094007S | 1.00 | 1302 | | | | | | | X | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1304 | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1307 | | | | | | | | | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 1309 | | | | | | | X | | | | | | | | | | | | | | | | | |
| CCB | 1.00 | 1312 | | | | | | | X | | | | | | | | | | | | | | | | | |

FORM XIV - IN SW-846

U.S. EPA - CLP

14
ANALYSIS RUN LOG

b Name: ITAS_ST._LOUIS_____ Contract: 500.01____

b Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

strument ID Number: PS200_____ Method: CV

art Date: 10/07/94 End Date: 10/07/94

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | | | |
| 0 | 1.00 | 1343 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 0.5 | 1.00 | 1345 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1 | 1.00 | 1347 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2 | 1.00 | 1350 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 | 1.00 | 1353 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 | 1.00 | 1355 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CV | 1.00 | 1400 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CB | 1.00 | 1402 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| RA | 1.00 | 1406 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CV | 1.00 | 1408 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CB | 1.00 | 1411 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| BW47445 | 1.00 | 1414 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CSW47445 | 1.00 | 1416 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 00093963 | 1.00 | 1419 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 00093963D | 1.00 | 1421 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 00093963S | 1.00 | 1423 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZ | 1.00 | 1425 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZ | 1.00 | 1429 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZ | 1.00 | 1431 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZ | 1.00 | 1434 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CV | 1.00 | 1437 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CB | 1.00 | 1439 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

FORM XIV - IN SW-846

U.S. EPA - CLP

14

ANALYSIS RUN LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Instrument ID Number: PS200_____ Method: CV

Start Date: 10/12/94 End Date: 10/12/94

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | | | |
| S0 | 1.00 | 2024 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S0.5 | 1.00 | 2027 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S1 | 1.00 | 2029 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S2 | 1.00 | 2032 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S5 | 1.00 | 2034 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S10 | 1.00 | 2037 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ICV | 1.00 | 2040 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ICB | 1.00 | 2043 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CRA | 1.00 | 2045 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCV | 1.00 | 2047 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCB | 1.00 | 2050 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 2052 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 2054 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 2056 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 2059 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 2101 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 2103 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 2105 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 2108 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 2110 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 2112 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCV | 1.00 | 2114 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCB | 1.00 | 2117 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 2119 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 2121 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 2123 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 2125 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PBW47980 | 1.00 | 2128 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| LCSW47980 | 1.00 | 2130 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 2132 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 2134 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 2136 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

FORM XIV - IN SW-846

U.S. EPA - CLP

14
ANALYSIS RUN LOG

b Name: ITAS_ST._LOUIS_____ Contract: 500.01____

b Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

strument ID Number: PS200_____ Method: CV

art Date: 10/12/94 End Date: 10/12/94

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | | | |
| ZZZZZ | 1.00 | 2139 | | | | | | | | | | | | | | | | | | | | | | | | | |
| CV | 1.00 | 2141 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| CB | 1.00 | 2143 | | | | | | | X | | | | | | | | | | | | | | | | | | |

FORM XIV - IN SW-846

U.S. EPA - CLP

14

ANALYSIS RUN LOG

ab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

ab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

nstrument ID Number: PS200_____ Method: CV

tart Date: 10/12/94 End Date: 10/13/94

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | | | |
| S0 | 1.00 | 2209 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S0.5 | 1.00 | 2211 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S1 | 1.00 | 2213 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S2 | 1.00 | 2216 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S5 | 1.00 | 2219 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S10 | 1.00 | 2221 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ICV | 1.00 | 2224 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ICB | 1.00 | 2353 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CRA | 1.00 | 2355 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCV | 1.00 | 2357 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCB | 1.00 | 0000 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 0002 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 0004 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 0006 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 0008 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 0010 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 0013 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 0015 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 200093963S | 1.00 | 0017 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 0019 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 0021 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCV | 1.00 | 0024 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCB | 1.00 | 0026 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

FORM XIV - IN SW-846

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

) Name: ITAS_ST._LOUIS_____ Contract: 500.01____

) Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975P_____

V No.: SW846

| EPA Sample No. | Lab Sample ID |
|---|---|
| PBT46598 | PBT46598 |
| 200093999 | P6172-007 |
| 200093999D | P6172-007D |
| 200093999S | P6172-007S |

re ICP interelement corrections applied ? Yes/No YES

re ICP background corrections applied ? Yes/No YES

If yes - were raw data generated before application of background corrections ? Yes/No NO_

mments:

certify that this data package is in compliance with the terms and nditions of the contract, both technically and for completeness, for her than the conditions detailed above. Release of the data contained this hardcopy data package and in the computer-readable data submitted floppy diskette has been authorized by the Laboratory Manager or the nager's designee, as verified by the following signature.

gnature: Kathy R. Giacopelli for Robert E. White Name: KATHY R. GIACOPELLI FOR ROBERT E. WHITE

te: 11-9-94 Title: PROJECT ASST / PROJECT MANAGER

COVER PAGE - IN TCLP

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

200093999

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: 3975P_____

Matrix (soil/water): WATER Lab Sample ID: P6172-007

Level (low/med): _____ Date Received: 09/21/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic__ | 38.0 | U | | P_ |
| 7440-39-3 | Barium___ | 349 | _ | | P_ |
| 7440-43-9 | Cadmium__ | 315 | _ | | P_ |
| 7440-47-3 | Chromium_ | 22.9 | _ | | P_ |
| 7439-92-1 | Lead____ | 3800 | _ | | P_ |
| 7439-97-6 | Mercury__ | 1.0 | U | | CV |
| 7782-49-2 | Selenium_ | 36.7 | U | | P_ |
| 7440-22-4 | Silver___ | 3.0 | U | | P_ |

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

FORM I - IN

TCLP

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

PBT46598

ab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

ab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: 3975P_____

atrix (soil/water): WATER Lab Sample ID: PBT46598

evel (low/med): LOW__ Date Received: 09/28/94

Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic__ | 152 | U | | P |
| 7440-39-3 | Barium___ | 2.8 | U | | P |
| 7440-43-9 | Cadmium__ | 8.8 | U | | P |
| 7440-47-3 | Chromium_ | 12.0 | U | | P |
| 7439-92-1 | Lead____ | 105 | | | P |
| 7439-97-6 | Mercury__ | 1.0 | | | CV |
| 7782-49-2 | Selenium_ | 147 | U | | P |
| 7440-22-4 | Silver___ | 12.0 | U | | P |

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

FORM I - IN

TCLP

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975P_____

Initial Calibration Source: SOL+/LL/SPX_

Continuing Calibration Source: SOL+/LL/SPX_

Concentration Units: ug/L

| Analyte | Initial Calibration True | Initial Calibration Found | Initial Calibration %R(1) | Continuing Calibration True | Continuing Calibration Found | Continuing Calibration %R(1) | Continuing Calibration Found | Continuing Calibration %R(1) | M |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 4000.0 | 3866.68 | 96.7 | 4000.0 | 3769.07 | 94.2 | 3990.70 | 99.8 | P |
| Barium | | | | | | | | | NR |
| Cadmium | | | | | | | | | NR |
| Chromium | 4000.0 | 3833.13 | 95.8 | 4000.0 | 3739.78 | 93.5 | 3911.03 | 97.8 | P |
| Lead | 4000.0 | 3831.86 | 95.8 | 4000.0 | 3872.42 | 96.8 | 3983.99 | 99.6 | P |
| Mercury | 6.0 | 5.95 | 99.2 | 4.0 | 3.88 | 97.0 | 3.73 | 93.2 | CV |
| Selenium | 4000.0 | 3866.69 | 96.7 | 4000.0 | 3790.80 | 94.8 | 3971.97 | 99.3 | P |
| Silver | 1000.0 | 964.28 | 96.4 | 1000.0 | 929.43 | 92.9 | 983.65 | 98.4 | P |

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

TCLP

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

b Name: ITAS_ST._LOUIS_____ Contract: 500.01____

b Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975P_____

itial Calibration Source: SOL+/LL/SPX_

ntinuing Calibration Source: SOL+/LL/SPX_

Concentration Units: ug/L

| nalyte | Initial Calibration True | Initial Calibration Found | Initial Calibration %R(1) | Continuing Calibration True | Continuing Calibration Found | Continuing Calibration %R(1) | Continuing Calibration Found | Continuing Calibration %R(1) | M |
|---|---|---|---|---|---|---|---|---|---|
| rsenic__ | | | | 4000.0 | 3856.15 | 96.4 | | | P |
| arium__ | | | | | | | | | NR |
| admium__ | | | | | | | | | NR |
| hromium_ | | | | 4000.0 | 3798.08 | 95.0 | | | P |
| ead____ | | | | 4000.0 | 3870.60 | 96.8 | | | P |
| ercury__ | | | | | | | | | NR |
| elenium_ | | | | 4000.0 | 3815.99 | 95.4 | | | P |
| ilver___ | | | | 1000.0 | 968.04 | 96.8 | | | P |

) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

TCLP

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975P_____

Initial Calibration Source: SOL+/LL/SPX_

Continuing Calibration Source: SOL+/LL/SPX_

Concentration Units: ug/L

| Analyte | Initial Calibration True | Initial Calibration Found | Initial Calibration %R(1) | Continuing Calibration True | Continuing Calibration Found | Continuing Calibration %R(1) | Continuing Calibration Found | Continuing Calibration %R(1) | M |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | | | | | | | | | NR |
| Barium | 4000.0 | 3823.59 | 95.6 | 4000.0 | 3719.31 | 93.0 | 3794.63 | 94.9 | P |
| Cadmium | 4000.0 | 3808.98 | 95.2 | 4000.0 | 3736.35 | 93.4 | 3771.23 | 94.3 | P |
| Chromium | | | | | | | | | NR |
| Lead | | | | | | | | | NR |
| Mercury | | | | | | | | | NR |
| Selenium | | | | | | | | | NR |
| Silver | | | | | | | | | NR |

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

TCLP

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975P_____

ial Calibration Source: SOL+/LL/SPX_

inuing Calibration Source: SOL+/LL/SPX_

Concentration Units: ug/L

| lyte | Initial Calibration True | Initial Calibration Found | Initial Calibration %R(1) | Continuing Calibration True | Continuing Calibration Found | Continuing Calibration %R(1) | Continuing Calibration Found | Continuing Calibration %R(1) | M |
|---|---|---|---|---|---|---|---|---|---|
| enic | | | | | | | | | NR |
| ium | | | | 4000.0 | 3763. | 94.1 | | | P |
| mium | | | | 4000.0 | 3757. | 93.9 | | | P |
| omium | | | | | | | | | NR |
| d | | | | | | | | | NR |
| cury | | | | | | | | | NR |
| enium | | | | | | | | | NR |
| ver | | | | | | | | | NR |

Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

TCLP

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 3975P_____

AA CRDL Standard Source: SPEX/SOL+/LL

ICP CRDL Standard Source: SPEX/SOLNS P

Concentration Units: ug/L

| Analyte | CRDL Standard for AA | | | CRDL Standard for ICP | | | | |
|---|---|---|---|---|---|---|---|---|
| | True | Found | %R | True | Initial Found | %R | Final Found | %R |
| Arsenic | | | | | | | | |
| Barium | | | | | | | | |
| Cadmium | | | | | | | | |
| Chromium | | | | 20.0 | 19.47 | 97.4 | 21.60 | 108.0 |
| Lead | | | | 200.0 | 198.75 | 99.4 | 190.92 | 95.5 |
| Mercury | 0.2 | 0.23 | 115.0 | | | | | |
| Selenium | | | | | | | | |
| Silver | | | | 20.0 | 20.28 | 101.4 | 17.52 | 87.6 |

FORM II (PART 2) - IN

TCLP

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

) Name: ITAS_ST._LOUIS_____ Contract: 500.01____

) Code: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 3975P_____

CRDL Standard Source: SPEX/SOL+/LL

' CRDL Standard Source: SPEX/SOLNS P

Concentration Units: ug/L

| | CRDL Standard for AA | | | CRDL Standard for ICP | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Initial | | Final | |
| alyte | True | Found | %R | True | Found | %R | Found | %R |
| 'senic | | | | | | | | |
| rium | | | | | | | | |
| dmium | | | | 10.0 | 12.08 | 120.8 | 11.10 | 111.0 |
| romium | | | | | | | | |
| ad | | | | | | | | |
| rcury | | | | | | | | |
| lenium | | | | | | | | |
| lver | | | | | | | | |

FORM II (PART 2) - IN

TCLP

U.S. EPA - CLP

3
BLANKS

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975P_____

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

| Analyte | Initial Calib. Blank (ug/L) | C | Continuing Calibration Blank (ug/L) 1 | C | 2 | C | 3 | C | Prepa-ration Blank | C | M |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 38.0 | U | 38.0 | U | 38.0 | U | 38.0 | U | 38.000 | U | P |
| Barium | 0.7 | U | 0.7 | U | 0.7 | U | 0.7 | U | 0.700 | U | P |
| Cadmium | 2.2 | U | 2.2 | U | 2.2 | U | 2.2 | U | 2.200 | U | P |
| Chromium | 3.0 | U | 3.0 | U | 3.0 | U | 5.4 | B | 3.000 | U | P |
| Lead | 26.3 | U | 26.3 | U | 26.3 | U | 26.3 | U | 26.300 | U | P |
| Mercury | 0.1 | U | 0.1 | U | 0.1 | U | | | 0.100 | U | CV |
| Selenium | 36.7 | U | 36.7 | U | -57.6 | B | 36.7 | U | 36.700 | U | P |
| Silver | 3.0 | U | 3.0 | U | 3.0 | U | 3.0 | U | 3.000 | U | P |

FORM III - IN

TCLP

U.S. EPA - CLP

4

ICP INTERFERENCE CHECK SAMPLE

Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Code: ITMO__Case No.: _____ SAS No: _____ SDG No.: 3975P_____

ID Number: TJA1100_____ ICS Source: SPEX/SOLPLUS

Concentration Units: ug/L

| Analyte | True Sol. A | True Sol. AB | Initial Found Sol. A | Initial Found Sol. AB | Initial Found %R | Final Found Sol. A | Final Found Sol. AB | Final Found %R |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 0 | 0 | -502 | -496.7 | | -424 | -457.9 | |
| Barium | | | | | | | | |
| Cadmium | | | | | | | | |
| Chromium | 0 | 500 | -3 | 432.9 | 86.6 | -3 | 437.0 | 87.4 |
| Lead | 0 | 1000 | 66 | 939.8 | 94.0 | 43 | 990.4 | 99.0 |
| Mercury | | | | | | | | |
| Selenium | 0 | 0 | -104 | -141.8 | | -164 | -174.4 | |
| Silver | 0 | 1000 | -14 | 968.7 | 96.9 | -14 | 966.7 | 96.7 |

FORM IV - IN TCLP

U.S. EPA - CLP

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__Case No.: _____ SAS No: _____ SDG No.: 3975P_____

ICP ID Number: TJA1100_____ ICS Source: SPEX/SOLPLUS

Concentration Units: ug/L

| Analyte | True Sol. A | True Sol. AB | Initial Found Sol. A | Initial Found Sol. AB | Initial Found %R | Final Found Sol. A | Final Found Sol. AB | Final Found %R |
|---|---|---|---|---|---|---|---|---|
| Arsenic | | | | | | | | |
| Barium | 0 | 500 | 8 | 460.9 | 92.2 | 8 | 455.8 | 91.2 |
| Cadmium | 0 | 1000 | 5 | 909.6 | 91.0 | 2 | 906.5 | 90.6 |
| Chromium | | | | | | | | |
| Lead | | | | | | | | |
| Mercury | | | | | | | | |
| Selenium | | | | | | | | |
| Silver | | | | | | | | |

FORM IV - IN TCLP

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

200093999S

ıme: ITAS_ST._LOUIS_____ Contract: 500.01____

ɔde: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975P_____

ɛ (soil/water): WATER_ Level (low/med): _____

ids for Sample: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

| lyte | Control Limit %R | Spiked Sample Result (SSR) | C | Sample Result (SR) | C | Spike Added (SA) | %R | Q | M |
|---|---|---|---|---|---|---|---|---|---|
| nic | 75-125 | 4758.2400 | | 38.0000 | U | 5000.00 | 95.2 | | P |
| ım | 75-125 | 4823.3280 | | 348.6080 | | 5000.00 | 89.5 | | P |
| ium | 75-125 | 1233.7600 | | 314.9800 | | 1000.00 | 91.9 | | P |
| nium | 75-125 | 4621.2500 | | 22.9200 | | 5000.00 | 92.0 | | P |
| | 75-125 | 8380.8100 | | 3801.1700 | | 5000.00 | 91.6 | | P |
| ury | 75-125 | 8.9000 | | 1.0000 | U | 10.00 | 89.0 | | CV |
| nium | 75-125 | 1945.5600 | | 36.7000 | U | 2000.00 | 97.3 | | P |
| er | 75-125 | 4596.6500 | | 3.0000 | U | 5000.00 | 91.9 | | P |

nts:

FORM V (Part 1) - IN TCLP

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

200093999D

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 3975P_____

Matrix (soil/water): WATER Level (low/med): _____

% Solids for Sample: __0.0 % Solids for Duplicate: ___0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

| Analyte | Control Limit | Sample (S) | C | Duplicate (D) | C | RPD | Q | M |
|---|---|---|---|---|---|---|---|---|
| Arsenic | | 38.0000 | U | 49.0600 | B | 200.0 | | P |
| Barium | | 348.6080 | | 341.7400 | | 2.0 | | P |
| Cadmium | | 314.9800 | | 310.4800 | | 1.4 | | P |
| Chromium | 20.0 | 22.9200 | | 19.8100 | B | 14.6 | | P |
| Lead | | 3801.1700 | | 3751.9500 | | 1.3 | | P |
| Mercury | | 1.0000 | U | 1.0000 | U | | | CV |
| Selenium | | 36.7000 | U | 36.7000 | U | | | P |
| Silver | | 3.0000 | U | 3.0000 | U | | | P |

FORM VI - IN

TCLP

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Code: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 3975P_____

d LCS Source: _____

ous LCS Source: SOLUTIONS PL

| lyte | Aqueous (ug/L) True | Found | %R | Solid (mg/kg) True | Found | C | Limits | | %R |
|---|---|---|---|---|---|---|---|---|---|
| enic | 1000.0 | 967.54 | 96.8 | | | | | | |
| ium | 1000.0 | 952.77 | 95.3 | | | | | | |
| lmium | 1000.0 | 945.77 | 94.6 | | | | | | |
| omium | 1000.0 | 948.66 | 94.9 | | | | | | |
| d | 1000.0 | 952.28 | 95.2 | | | | | | |
| cury | | | | | | | | | |
| enium | 1000.0 | 917.17 | 91.7 | | | | | | |
| ver | 250.0 | 161.75 | 64.7 | | | | | | |

FORM VII - IN

TCLP

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 3975P_____

Solid LCS Source: _____

Aqueous LCS Source: LEEMAN LABS_

| Analyte | Aqueous (ug/L) True | Found | %R | Solid (mg/kg) True | Found | C | Limits | | %R |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | | | | | | | | | |
| Barium | | | | | | | | | |
| Cadmium | | | | | | | | | |
| Chromium | | | | | | | | | |
| Lead | | | | | | | | | |
| Mercury | 3.0 | 2.85 | 95.0 | | | | | | |
| Selenium | | | | | | | | | |
| Silver | | | | | | | | | |

FORM VII - IN

TCLP

U.S. EPA - CLP

8
STANDARD ADDITION RESULTS

Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975P_____

Concentration Units: ug/L

| PA mple o. | An | 0 ADD ABS | 1 ADD CON | 1 ADD ABS | 2 ADD CON | 2 ADD ABS | 3 ADD CON | 3 ADD ABS | Final Conc. | r | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |

FORM VIII - IN ILM03.0

U.S. EPA - CLP

10
Instrument Detection Limits (Quarterly)

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 3975P_____

ICP ID Number: TJA1100_____ Date: 07/01/94

Flame AA ID Number : _____

Furnace AA ID Number : _____

| Analyte | Wave-length (nm) | Back-ground | CRDL (ug/L) | IDL (ug/L) | M |
|---|---|---|---|---|---|
| Arsenic | 193.70 | | 500 | 38.0 | P |
| Barium | 455.40 | | 10 | 0.7 | P |
| Cadmium | 228.80 | | 5 | 2.2 | P |
| Chromium | 267.72 | | 20 | 3.0 | P |
| Lead | 220.35 | | 100 | 26.3 | P |
| Mercury | | | 0.2 | | NR |
| Selenium | 196.03 | | 250 | 36.7 | P |
| Silver | 328.07 | | 10 | 3.0 | P |

Comments:

FORM X - IN TCLP

U.S. EPA - CLP

10
Instrument Detection Limits (Quarterly)

lame: ITAS_ST._LOUIS_____ Contract: 500.01____

:ode: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 3975P_____

:D Number: _____ Date: 07/06/94

: AA ID Number : PS200_____

ıce AA ID Number : _____

| Analyte | Wave-length (nm) | Back-ground | CRDL (ug/L) | IDL (ug/L) | M |
|---|---|---|---|---|---|
| Arsenic | | | 500 | | NR |
| Barium | | | 10 | | NR |
| Cadmium | | | 5 | | NR |
| Chromium | | | 20 | | NR |
| Lead | | | 100 | | NR |
| Mercury | 253.70 | | 0.2 | 0.1 | CV |
| Selenium | | | 250 | | NR |
| Silver | | | 10 | | NR |

ents:

FORM X - IN TCLP

U.S. EPA - CLP

11A

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 3975P_____

ICP ID Number: TJA1100_____ Date: 04/25/94

| Analyte | Wave-length (nm) | Interelement Correction Factors for : Al | Ca | Fe | Mg | NA_ |
|---|---|---|---|---|---|---|
| Arsenic | 193.70 | 0.0071700 | 0.0000000 | 0.0006000 | -0.0007500 | 0.0000000 |
| Barium | 455.40 | 0.0000000 | 0.0000100 | 0.0000000 | 0.0000000 | 0.0000000 |
| Cadmium | 228.80 | 0.0000000 | 0.0000000 | 0.0000000 | 0.0000000 | 0.0000000 |
| Chromium | 267.72 | 0.0000110 | 0.0000000 | -0.0000200 | -0.0000140 | 0.0000000 |
| Lead | 220.35 | 0.0016600 | 0.0000000 | 0.0000000 | 0.0000000 | 0.0000000 |
| Mercury | | | | | | |
| Selenium | 196.03 | 0.0000000 | 0.0000000 | -0.0024200 | 0.0000500 | 0.0000000 |
| Silver | 328.07 | 0.0000000 | 0.0000080 | -0.0002750 | 0.0000000 | 0.0000100 |

Comments:

FORM XI (Part 1) - IN TCLP

U.S. EPA - CLP

11B
ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Code: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 3975P_____

ID Number: TJA1100_____ Date: 04/25/94

| alyte | Wave-length (nm) | Interelement Correction Factors for : TH_ | U__ | ___ | ___ | ___ |
|---|---|---|---|---|---|---|
| enic | 193.70 | -0.0000460 | 0.0028200 | | | |
| ium | 455.40 | 0.0003100 | 0.0000900 | | | |
| mium | 228.80 | 0.0000000 | -0.0001000 | | | |
| omium | 267.72 | -0.0015500 | -0.0040600 | | | |
| d | 220.35 | -0.0018000 | 0.0011700 | | | |
| cury | | | | | | |
| enium | 196.03 | -0.0033900 | 0.0002490 | | | |
| ver | 328.07 | -0.0019300 | 0.0015870 | | | |

ents:

FORM XI (Part 2) - IN TCLP

U.S. EPA - CLP

12
ICP LINEAR RANGES (QUARTERLY)

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 3975P_____

ICP ID Number: TJA1100_____ Date: 07/01/94

| Analyte | Integ. Time (sec.) | Concentration (ug/L) | M |
|---|---|---|---|
| Arsenic | 5.00 | 50000.0 | P |
| Barium | 5.00 | 100000.0 | P |
| Cadmium | 5.00 | 50000.0 | P |
| Chromium | 5.00 | 50000.0 | P |
| Lead | 5.00 | 50000.0 | P |
| Mercury | | | NR |
| Selenium | 5.00 | 100000.0 | P |
| Silver | 5.00 | 20000.0 | P |

Comments:

FORM XII - IN TCLP

U.S. EPA - CLP

13
PREPARATION LOG

Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975P_____

od: P_

| EPA Sample No. | Preparation Date | Weight (gram) | Volume (mL) |
|---|---|---|---|
| 200093999 | 09/29/94 | | 100 |
| 200093999D | 09/29/94 | | 100 |
| 200093999S | 09/29/94 | | 100 |
| LCSW46784 | 09/29/94 | | 100 |
| PBT46598 | 09/29/94 | | 100 |
| PBW46784 | 09/29/94 | | 100 |

FORM XIII - IN TCLP

U.S. EPA - CLP

13
PREPARATION LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975P_____

Method: CV

| EPA Sample No. | Preparation Date | Weight (gram) | Volume (mL) |
|---|---|---|---|
| 200093999 | 09/29/94 | | 100 |
| 200093999D | 09/29/94 | | 100 |
| 200093999S | 09/29/94 | | 100 |
| LCSW46787 | 09/29/94 | | 100 |
| PBT46598 | 09/29/94 | | 100 |
| PBW46787 | 09/29/94 | | 100 |

FORM XIII - IN TCLP

U.S. EPA - CLP

14
ANALYSIS RUN LOG

ame: ITAS_ST._LOUIS_____ Contract: 500.01____

ode: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975P_____

ument ID Number: TJA1100_____ Method: P_

Date: 09/29/94 End Date: 09/29/94

| A ple . | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | | | |
| | 1.00 | 1345 | | X | - | - | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1.00 | 1348 | | X | - | - | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1.00 | 1351 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1.00 | 1354 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1.00 | 1357 | | X | - | - | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1.00 | 1359 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1.00 | 1402 | | | - | - | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1.00 | 1405 | | X | - | - | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1.00 | 1408 | | X | - | - | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1.00 | 1411 | | | - | - | X | X | - | | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1.00 | 1414 | | X | - | - | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| B | 1.00 | 1417 | | X | - | - | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 6784 | 1.00 | 1420 | | X | - | - | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 46784 | 1.00 | 1422 | | X | - | - | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 93999 | 1.00 | 1425 | | X | - | - | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 93999S | 1.00 | 1428 | | X | - | - | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 93999D | 1.00 | 1431 | | X | - | - | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZ | 1.00 | 1434 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZ | 1.00 | 1437 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1.00 | 1440 | | X | - | - | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1.00 | 1443 | | X | - | - | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZ | 1.00 | 1446 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZ | 1.00 | 1448 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZ | 1.00 | 1451 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZ | 1.00 | 1454 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZ | 5.00 | 1457 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZ | 1.00 | 1500 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZ | 1.00 | 1503 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 6598 | 1.00 | 1506 | | X | - | - | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1.00 | 1509 | | X | - | - | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1.00 | 1511 | | X | - | - | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZ | 1.00 | 1514 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

FORM XIV - IN TCLP

U.S. EPA - CLP

14

ANALYSIS RUN LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975P_____

Instrument ID Number: TJA1100_____ Method: P_

Start Date: 09/29/94 End Date: 09/29/94

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1517 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1520 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CRI | 1.00 | 1523 | | - | - | - | X | X | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ICSA | 1.00 | 1526 | | X | - | - | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ICSAB | 1.00 | 1529 | | X | - | - | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCV | 1.00 | 1532 | | X | - | - | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCB | 1.00 | 1534 | | X | - | - | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

FORM XIV - IN TCLP

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975P_____

:rument ID Number: TJA1100_____ Method: P_

:t Date: 09/29/94 End Date: 09/29/94

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | | | |
| | 1.00 | 1755 | | | X | X | | | | | | | | | | | | | | | | | | | | | |
| | 1.00 | 1758 | | | X | X | | | | | | | | | | | | | | | | | | | | | |
| | 1.00 | 1801 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1.00 | 1805 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1.00 | 1808 | | | X | X | | | | | | | | | | | | | | | | | | | | | |
| / | 1.00 | 1811 | | | X | X | | | | | | | | | | | | | | | | | | | | | |
| 3 | 1.00 | 1813 | | | X | X | | | | | | | | | | | | | | | | | | | | | |
| [ | 1.00 | 1816 | | | | X | | | | | | | | | | | | | | | | | | | | | |
| SA | 1.00 | 1819 | | | X | X | | | | | | | | | | | | | | | | | | | | | |
| SAB | 1.00 | 1822 | | | X | X | | | | | | | | | | | | | | | | | | | | | |
| W46784 | 1.00 | 1825 | | | X | X | | | | | | | | | | | | | | | | | | | | | |
| SW46784 | 1.00 | 1828 | | | X | X | | | | | | | | | | | | | | | | | | | | | |
| )093999 | 4.00 | 1831 | | | X | X | | | | | | | | | | | | | | | | | | | | | |
| )093999S | 4.00 | 1834 | | | X | X | | | | | | | | | | | | | | | | | | | | | |
| )093999D | 4.00 | 1837 | | | X | X | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1840 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1843 | | | | | | | | | | | | | | | | | | | | | | | | | |
| / | 1.00 | 1846 | | | X | X | | | | | | | | | | | | | | | | | | | | | |
| 3 | 1.00 | 1849 | | | X | X | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1852 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1855 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1857 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1900 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 5.00 | 1903 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1906 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1909 | | | | | | | | | | | | | | | | | | | | | | | | | |
| [46598 | 1.00 | 1912 | | | X | X | | | | | | | | | | | | | | | | | | | | | |
| / | 1.00 | 1915 | | | X | X | | | | | | | | | | | | | | | | | | | | | |
| 3 | 1.00 | 1918 | | | X | X | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1921 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1924 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZ | 1.00 | 1927 | | | | | | | | | | | | | | | | | | | | | | | | | |

FORM XIV - IN TCLP

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975P_____

Instrument ID Number: TJA1100_____ Method: P_

Start Date: 09/29/94 End Date: 09/29/94

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | | | |
| CRI | 1.00 | 1930 | | | | X | | | | | | | | | | | | | | | | | | | | | |
| ICSA | 1.00 | 1933 | | | X | X | | | | | | | | | | | | | | | | | | | | | |
| ICSAB | 1.00 | 1936 | | | X | X | | | | | | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 1939 | | | X | X | | | | | | | | | | | | | | | | | | | | | |
| CCB | 1.00 | 1942 | | | X | X | | | | | | | | | | | | | | | | | | | | | |

FORM XIV - IN TCLP

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975P_____

Instrument ID Number: PS200_____ Method: CV

Start Date: 09/29/94 End Date: 09/29/94

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | | | |
| S0 | 1.00 | 1334 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| S0.5 | 1.00 | 1336 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| S1 | 1.00 | 1339 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| S2 | 1.00 | 1341 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| S5 | 1.00 | 1344 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| S10 | 1.00 | 1346 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| ICV | 1.00 | 1349 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| ICB | 1.00 | 1352 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| CRA | 1.00 | 1354 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 1357 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| CCB | 1.00 | 1359 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| PBW46787 | 1.00 | 1402 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| LCSW46787 | 1.00 | 1404 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1406 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1409 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1411 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1413 | | | | | | | | | | | | | | | | | | | | | | | | | |
| PBT46598 | 1.00 | 1416 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| 200093999 | 1.00 | 1418 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| 200093999D | 1.00 | 1420 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| 200093999S | 1.00 | 1423 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 1425 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| CCB | 1.00 | 1428 | | | | | | | X | | | | | | | | | | | | | | | | | | |

FORM XIV - IN TCLP

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO

200093966

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V17204 SDG No.: 3975

Matrix: (soil/water) WATER Lab Sample ID: 6172-004

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: E0855

Level: (low/med) LOW Date Received: 09/21/94

% Moisture: not dec. Date Analyzed: 09/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-09-2 | Methylene Chloride | 5 | U |
| 67-64-1 | Acetone | 100 | U |
| 75-69-4 | Trichlorofluoromethane | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 5 | U |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 5 | U |
| 67-66-3 | Chloroform | 15 | |
| 107-06-2 | 1,2-Dichlorethane | 5 | U |
| 78-93-3 | 2-Butanone | 100 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 50 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 108-88-3 | Toluene | 5 | U |
| 108-90-7 | Chlorobenzene | 5 | U |
| 100-41-4 | Ethylbenzene | 5 | U |
| 1330-20-7 | Xylene (total) | 5 | U |
| 108-94-1 | Cyclohexanone | 150 | U |
| 141-78-6 | Ethyl Acetate | 20 | U |
| 60-29-7 | Diethyl Ether | 20 | U |

EPA SAMPLE NO.

200093997

TB

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V17204 SDG No.: 3975

Matrix: (soil/water) WATER Lab Sample ID: 6172-006

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: E0856

Level: (low/med) LOW Date Received: 09/21/94

% Moisture: not dec. Date Analyzed: 09/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-09-2 | Methylene Chloride | 5 | U |
| 67-64-1 | Acetone | 100 | U |
| 75-69-4 | Trichlorofluoromethane | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 5 | U |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichlorethane | 5 | U |
| 78-93-3 | 2-Butanone | 100 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 50 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 108-88-3 | Toluene | 5 | U |
| 108-90-7 | Chlorobenzene | 5 | U |
| 100-41-4 | Ethylbenzene | 5 | U |
| 1330-20-7 | Xylene (total) | 5 | U |
| 108-94-1 | Cyclohexanone | 150 | U |
| 141-78-6 | Ethyl Acetate | 20 | U |
| 60-29-7 | Diethyl Ether | 20 | U |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200094002

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V17204 SDG No.: 3975

Matrix: (soil/water) SOIL Lab Sample ID: 6172-010

Sample wt/vol: 4.00 (g/mL) G Lab File ID: E0903

Level: (low/med) MED Date Received: 09/21/94

% Moisture: not dec. 10 Date Analyzed: 09/28/94

Column: (pack/cap) CAP Dilution Factor: 1000

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 1400000 | U |
| 75-09-2 | Methylene Chloride | 1000000 | B |
| 67-64-1 | Acetone | 2400000 | BJ |
| 75-69-4 | Trichlorofluoromethane | 1400000 | U |
| 75-15-0 | Carbon Disulfide | 690000 | U |
| 75-35-4 | 1,1-Dichloroethene | 620000 | J |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 690000 | U |
| 67-66-3 | Chloroform | 690000 | U |
| 107-06-2 | 1,2-Dichlorethane | 690000 | U |
| 78-93-3 | 2-Butanone | 14000000 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 21000000 | ✓ |
| 56-23-5 | Carbon Tetrachloride | 690000 | U |
| 79-01-6 | Trichloroethene | 690000 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 340000 | J |
| 71-43-2 | Benzene | 690000 | U |
| 75-25-2 | Bromoform | 690000 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 6900000 | U |
| 127-18-4 | Tetrachloroethene | 690000 | U |
| 108-88-3 | Toluene | 860000 | ✓ |
| 108-90-7 | Chlorobenzene | 690000 | U |
| 100-41-4 | Ethylbenzene | 690000 | U |
| 1330-20-7 | Xylene (total) | 690000 | U |
| 108-94-1 | Cyclohexanone | 21000000 | U |
| 141-78-6 | Ethyl Acetate | 2800000 | U |
| 60-29-7 | Diethyl Ether | 2800000 | U |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200094002MS

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V17204 SDG No.: 3975

Matrix: (soil/water) SOIL Lab Sample ID: 6172-010MS

Sample wt/vol: 4.00 (g/mL) G Lab File ID: E0904

Level: (low/med) MED Date Received: 09/21/94

% Moisture: not dec. 10 Date Analyzed: 09/28/94

Column: (pack/cap) CAP Dilution Factor: 1000

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 1400000 | U |
| 75-09-2 | Methylene Chloride | 900000 | B |
| 67-64-1 | Acetone | 2600000 | BJ |
| 75-69-4 | Trichlorofluoromethane | 1400000 | U |
| 75-15-0 | Carbon Disulfide | 690000 | U |
| 75-35-4 | 1,1-Dichloroethene | 7400000 | ✓ |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 690000 | U |
| 67-66-3 | Chloroform | 690000 | U |
| 107-06-2 | 1,2-Dichlorethane | 690000 | U |
| 78-93-3 | 2-Butanone | 14000000 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 18000000 | ✓ |
| 56-23-5 | Carbon Tetrachloride | 690000 | U |
| 79-01-6 | Trichloroethene | 8000000 | ✓ |
| 79-00-5 | 1,1,2-Trichloroethane | 220000 | J |
| 71-43-2 | Benzene | 8000000 | ✓ |
| 75-25-2 | Bromoform | 690000 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 6900000 | U |
| 127-18-4 | Tetrachloroethene | 690000 | U |
| 108-88-3 | Toluene | 8200000 | ✓ |
| 108-90-7 | Chlorobenzene | 9200000 | ✓ |
| 100-41-4 | Ethylbenzene | 690000 | U |
| 1330-20-7 | Xylene (total) | 690000 | U |
| 108-94-1 | Cyclohexanone | 21000000 | U |
| 141-78-6 | Ethyl Acetate | 2800000 | U |
| 60-29-7 | Diethyl Ether | 2800000 | U |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO

200094002MSD

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V17204 SDG No.: 3975

Matrix: (soil/water) SOIL Lab Sample ID: 6172-010MSD

Sample wt/vol: 4.00 (g/mL) G Lab File ID: E0905

Level: (low/med) MED Date Received: 09/21/94

% Moisture: not dec. 10 Date Analyzed: 09/28/94

Column: (pack/cap) CAP Dilution Factor: 1000

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 1400000 | U |
| 75-09-2 | Methylene Chloride | 860000 | B |
| 67-64-1 | Acetone | 300000 | BJ |
| 75-69-4 | Trichlorofluoromethane | 1400000 | U |
| 75-15-0 | Carbon Disulfide | 690000 | U |
| 75-35-4 | 1,1-Dichloroethene | 9700000 | |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 690000 | U |
| 67-66-3 | Chloroform | 690000 | U |
| 107-06-2 | 1,2-Dichlorethane | 690000 | U |
| 78-93-3 | 2-Butanone | 14000000 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 13000000 | |
| 56-23-5 | Carbon Tetrachloride | 690000 | U |
| 79-01-6 | Trichloroethene | 7600000 | |
| 79-00-5 | 1,1,2-Trichloroethane | 240000 | J |
| 71-43-2 | Benzene | 7600000 | |
| 75-25-2 | Bromoform | 690000 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 6900000 | U |
| 127-18-4 | Tetrachloroethene | 690000 | U |
| 108-88-3 | Toluene | 7800000 | |
| 108-90-7 | Chlorobenzene | 8700000 | |
| 100-41-4 | Ethylbenzene | 690000 | U |
| 1330-20-7 | Xylene (total) | 690000 | U |
| 108-94-1 | Cyclohexanone | 21000000 | U |
| 141-78-6 | Ethyl Acetate | 2800000 | U |
| 60-29-7 | Diethyl Ether | 2800000 | U |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200094010

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V17214 SDG No.: 3975

Matrix: (soil/water) WATER Lab Sample ID: 6172-014

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F9912

Level: (low/med) LOW Date Received: 09/21/94

% Moisture: not dec. Date Analyzed: 10/06/94

Column: (pack/cap) CAP Dilution Factor: 10

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 100 | U |
| 75-35-4 | 1,1-Dichloroethene | 50 | U |
| 67-66-3 | Chloroform | 50 | U |
| 107-06-2 | 1,2-Dichloroethane | 48 | J |
| 78-93-3 | 2-Butanone | 570 | |
| 56-23-5 | Carbon Tetrachloride | 50 | U |
| 79-01-6 | Trichloroethene | 33 | J |
| 71-43-2 | Benzene | 50 | U |
| 127-18-4 | Tetrachloroethene | 14 | J |
| 108-90-7 | Chlorobenzene | 50 | U |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE I

200094010M

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V17214 SDG No.: 3975

Matrix: (soil/water) WATER Lab Sample ID: 6172-014MS

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F9913

Level: (low/med) LOW Date Received: 09/21/94

% Moisture: not dec. Date Analyzed: 10/06/94

Column: (pack/cap) CAP Dilution Factor: 10

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 200 | |
| 75-35-4 | 1,1-Dichloroethene | 750 | |
| 67-66-3 | Chloroform | 830 | |
| 107-06-2 | 1,2-Dichloroethane | 670 | |
| 78-93-3 | 2-Butanone | 1600 | |
| 56-23-5 | Carbon Tetrachloride | 640 | |
| 79-01-6 | Trichloroethene | 630 | |
| 71-43-2 | Benzene | 600 | |
| 127-18-4 | Tetrachloroethene | 860 | |
| 108-90-7 | Chlorobenzene | 860 | |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200094010MSD

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V17214 SDG No.: 3975

Matrix: (soil/water) WATER Lab Sample ID: 6172-014MSD

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F9914

Level: (low/med) LOW Date Received: 09/21/94

% Moisture: not dec. Date Analyzed: 10/06/94

Column: (pack/cap) CAP Dilution Factor: 10

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 180 | |
| 75-35-4 | 1,1-Dichloroethene | 730 | |
| 67-66-3 | Chloroform | 800 | |
| 107-06-2 | 1,2-Dichloroethane | 640 | |
| 78-93-3 | 2-Butanone | 1500 | |
| 56-23-5 | Carbon Tetrachloride | 640 | |
| 79-01-6 | Trichloroethene | 640 | |
| 71-43-2 | Benzene | 600 | |
| 127-18-4 | Tetrachloroethene | 850 | |
| 108-90-7 | Chlorobenzene | 840 | |

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V17214 SDG No.: 3975

| | EPA SAMPLE NO. | S1 (TOL) # | S2 (BFB) # | S3 (DCE) # | OTHER | TOT OUT |
|---|---|---|---|---|---|---|
| 01 | 200094010 | 104 | 103 | 111 | 0 | 0 |
| 02 | VEXTBLK01 | 104 | 101 | 108 | 0 | 0 |
| 03 | VSPK01 | 107 | 104 | 102 | 0 | 0 |
| 04 | 200094010MS | 106 | 102 | 107 | 0 | 0 |
| 05 | 200094010MSD | 107 | 102 | 105 | 0 | 0 |
| 06 | VBLK01 | 100 | 93 | 105 | 0 | 0 |

| | | QC LIMITS |
|---|---|---|
| S1 (TOL) | = Toluene-d8 | ( 88-110) |
| S2 (BFB) | = Bromofluorobenzene | ( 86-115) |
| S3 (DCE) | = 1,2-Dichloroethane-d4 | ( 76-114) |

# Column to be used to flag recovery values

• Values outside of contract required QC limits

D Surrogates diluted out

3I

TCLP VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ab Name: ITAS-ST.LOUIS Contract: 500-01

ab Code: ITSL Case No.: V17214 SDG No.: 3975

atrix Spike - EPA Sample No.: 200094010

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE CONCENTRATION (ug/L) | MS CONCENTRATION (ug/L) | MS % REC # | QC LIMITS REC. |
|---|---|---|---|---|---|
| Vinyl Chloride | 200 | 0 | 200 | 102 | D-251 |
| 1,1-Dichloroethene | 700 | 0 | 750 | 107 | D-234 |
| Chloroform | 700 | 0 | 830 | 119 | 51-138 |
| 1,2-Dichloroethane | 500 | 48 | 670 | 125 | 49-155 |
| 2-Butanone | 700 | 570 | 1600 | 144 | 25-180 |
| Carbon Tetrachloride | 500 | 0 | 640 | 128 | 70-140 |
| Trichloroethene | 500 | 32 | 630 | 120 | 71-157 |
| Benzene | 500 | 0 | 600 | 119 | 37-151 |
| Tetrachloroethene | 700 | 14 | 860 | 121 | 64-148 |
| Chlorobenzene | 700 | 0 | 860 | 123 | 37-160 |

| COMPOUND | SPIKE ADDED (ug/L) | MSD CONCENTRATION (ug/L) | MSD % REC # | % RPD | QC LIMITS RPD | QC LIMITS REC. |
|---|---|---|---|---|---|---|
| Vinyl Chloride | 200 | 180 | 92 | 10 | - | D-251 |
| 1,1-Dichloroethene | 700 | 730 | 104 | 3 | - | D-234 |
| Chloroform | 700 | 800 | 114 | 4 | - | 51-138 |
| 1,2-Dichloroethane | 500 | 640 | 120 | 4 | - | 49-155 |
| 2-Butanone | 700 | 1500 | 136 | 6 | - | 25-180 |
| Carbon Tetrachloride | 500 | 640 | 128 | 0 | - | 70-140 |
| Trichloroethene | 500 | 640 | 121 | 1 | - | 71-157 |
| Benzene | 500 | 600 | 121 | 2 | - | 37-151 |
| Tetrachloroethene | 700 | 850 | 119 | 2 | - | 64-148 |
| Chlorobenzene | 700 | 840 | 120 | 2 | - | 37-160 |

\# Column to be used to flag recovery values with an asterisk.
* Values outside of QC limits.
D Detected.
G: Not Given. Determined by QC Charting Procedures.

pike Recovery: 0 out of 20 outside limits

FORM III VOA

3A

# WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V34210 SDG No.: 4096

Matrix Spike - EPA Sample No.: 200093914

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE CONCENTRATION (ug/L) | MS CONCENTRATION (ug/L) | MS % REC # | Q LIM RE |
|---|---|---|---|---|---|
| 1,1-Dichloroethene | 50.0 | 1.83 | 51.2 | 99 | 1- |
| Trichloroethene | 50.0 | 0 | 52.0 | 104 | 71- |
| Benzene | 50.0 | 0 | 54.2 | 108 | 37- |
| Toluene | 50.0 | 0 | 53.6 | 107 | 47- |
| Chlorobenzene | 50.0 | 0 | 52.9 | 106 | 37- |

| COMPOUND | SPIKE ADDED (ug/L) | MSD CONCENTRATION (ug/L) | MSD % REC # | % RPD # | QC LIMIT RPD | RE |
|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 50.0 | 51.9 | 100 | -1 | 14 | 1- |
| Trichloroethene | 50.0 | 53.0 | 106 | -2 | 14 | 71- |
| Benzene | 50.0 | 55.0 | 110 | -2 | 11 | 37- |
| Toluene | 50.0 | 53.7 | 107 | 0 | 13 | 47- |
| Chlorobenzene | 50.0 | 54.0 | 108 | -2 | 13 | 37- |

# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS:

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V17214 SDG No.: 3975

Lab File ID: F9907 Lab Sample ID: QCBLK47550

Date Analyzed: 10/06/94 Time Analyzed: 1122

Matrix: (soil/water) WATER Level:(low/med) LOW

Instrument ID: MSF

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | TIME ANALYZED |
|---|---|---|---|---|
| 01 | 200094010 | 6172-014 | F9912 | 1429 |
| 02 | VEXTBLK01 | QCBLK46427EXT | F9911 | 1357 |
| 03 | VSPK01 | QCSPK47550 | F9910 | 1324 |
| 04 | 200094010MS | 6172-014MS | F9913 | 1502 |
| 05 | 200094010MSD | 6172-014MSD | F9914 | 1534 |

COMMENTS:

9A-LCS
VOA WATER LCS RECOVERY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V17214 SAS No.: SDG No.: 3975

EPA Sample No.: VSPK01 Level:(low/med) LOW

| COMPOUND | SPIKE ADDED (ug/L) | LCS CONCENTRATION (ug/L) | LCS % REC # | QC LIMITS REC. |
|---|---|---|---|---|
| Vinyl Chloride | 20 | 22 | 109 | D-251 |
| 1,1-Dichloroethene | 70 | 72 | 103 | D-234 |
| Chloroform | 70 | 77 | 110 | 51-138 |
| 1,2-Dichloroethane | 50 | 60 | 120 | 49-155 |
| 2-Butanone | 70 | 84 | 119 | 25-180 |
| Carbon Tetrachloride | 50 | 61 | 122 | 70-140 |
| Trichloroethene | 50 | 61 | 122 | 71-157 |
| Benzene | 50 | 59 | 118 | 37-151 |
| Tetrachloroethene | 70 | 87 | 124 | 64-148 |
| Chlorobenzene | 70 | 86 | 123 | 37-160 |

# Column to be used to flag recovery values with an asterisk.
* Values outside of QC limits.
D Detected.
NG: Not Given. Determined by QC Charting Procedures.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK01

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V17204 SDG No.: 3975

Matrix: (soil/water) WATER Lab Sample ID: QCBLK46566

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: E0847

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 09/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-09-2 | Methylene Chloride | 3 | J |
| 67-64-1 | Acetone | 17 | J |
| 75-69-4 | Trichlorofluoromethane | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 5 | U |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichlorethane | 5 | U |
| 78-93-3 | 2-Butanone | 100 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 50 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 108-88-3 | Toluene | 5 | U |
| 108-90-7 | Chlorobenzene | 5 | U |
| 100-41-4 | Ethylbenzene | 5 | U |
| 1330-20-7 | Xylene (total) | 5 | U |
| 108-94-1 | Cyclohexanone | 150 | U |
| 141-78-6 | Ethyl Acetate | 20 | U |
| 60-29-7 | Diethyl Ether | 20 | U |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE N

VSPK01

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V17204 SDG No.: 3975

Matrix: (soil/water) WATER Lab Sample ID: QCSPK46566

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: E0848

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 09/26/94

Column: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-09-2 | Methylene Chloride | 3 | BJ |
| 67-64-1 | Acetone | 4 | BJ |
| 75-69-4 | Trichlorofluoromethane | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 48 | |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichlorethane | 5 | U |
| 78-93-3 | 2-Butanone | 100 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 79-01-6 | Trichloroethene | 50 | |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 50 | |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 50 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 108-88-3 | Toluene | 54 | |
| 108-90-7 | Chlorobenzene | 52 | |
| 100-41-4 | Ethylbenzene | 5 | U |
| 1330-20-7 | Xylene (total) | 5 | U |
| 108-94-1 | Cyclohexanone | 150 | U |
| 141-78-6 | Ethyl Acetate | 20 | U |
| 60-29-7 | Diethyl Ether | 20 | U |

EPA SAMPLE NO.

VBLK02

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Name: ITAS-ST.LOUIS Contract: 500-01

Code: ITSL Case No.: V17204 SDG No.: 3975

rix: (soil/water) SOIL Lab Sample ID: QCBLK46802

ple wt/vol: 4.00 (g/mL) G Lab File ID: E0890

el: (low/med) MED Date Received:

oisture: not dec. Date Analyzed: 09/28/94

umn: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 1200 | U |
| 75-09-2 | Methylene Chloride | 460 | J |
| 67-64-1 | Acetone | 1400 | J |
| 75-69-4 | Trichlorofluoromethane | 1200 | U |
| 75-15-0 | Carbon Disulfide | 620 | U |
| 75-35-4 | 1,1-Dichloroethene | 620 | U |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 620 | U |
| 67-66-3 | Chloroform | 620 | U |
| 107-06-2 | 1,2-Dichlorethane | 620 | U |
| 78-93-3 | 2-Butanone | 12000 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 620 | U |
| 56-23-5 | Carbon Tetrachloride | 620 | U |
| 79-01-6 | Trichloroethene | 620 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 620 | U |
| 71-43-2 | Benzene | 620 | U |
| 75-25-2 | Bromoform | 620 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 6200 | U |
| 127-18-4 | Tetrachloroethene | 620 | U |
| 108-88-3 | Toluene | 620 | U |
| 108-90-7 | Chlorobenzene | 620 | U |
| 100-41-4 | Ethylbenzene | 620 | U |
| 1330-20-7 | Xylene (total) | 620 | U |
| 108-94-1 | Cyclohexanone | 19000 | U |
| 141-78-6 | Ethyl Acetate | 2500 | U |
| 60-29-7 | Diethyl Ether | 2500 | U |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE N

VSPK02

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V17204 SDG No.: 3975

Matrix: (soil/water) SOIL Lab Sample ID: QCSPK46802

Sample wt/vol: 4.00 (g/mL) G Lab File ID: E0891

Level: (low/med) MED Date Received:

% Moisture: not dec. Date Analyzed: 09/28/94

Column: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 1200 | U |
| 75-09-2 | Methylene Chloride | 510 | BJ |
| 67-64-1 | Acetone | 12000 | U |
| 75-69-4 | Trichlorofluoromethane | 1200 | U |
| 75-15-0 | Carbon Disulfide | 620 | U |
| 75-35-4 | 1,1-Dichloroethene | 6000 | |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 620 | U |
| 67-66-3 | Chloroform | 620 | U |
| 107-06-2 | 1,2-Dichlorethane | 620 | U |
| 78-93-3 | 2-Butanone | 12000 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 620 | U |
| 56-23-5 | Carbon Tetrachloride | 620 | U |
| 79-01-6 | Trichloroethene | 6900 | |
| 79-00-5 | 1,1,2-Trichloroethane | 620 | U |
| 71-43-2 | Benzene | 6900 | |
| 75-25-2 | Bromoform | 620 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 6200 | U |
| 127-18-4 | Tetrachloroethene | 620 | U |
| 108-88-3 | Toluene | 6700 | |
| 108-90-7 | Chlorobenzene | 7900 | |
| 100-41-4 | Ethylbenzene | 620 | U |
| 1330-20-7 | Xylene (total) | 620 | U |
| 108-94-1 | Cyclohexanone | 19000 | U |
| 141-78-6 | Ethyl Acetate | 2500 | U |
| 60-29-7 | Diethyl Ether | 2500 | U |

2A
WATER VOLATILE SURROGATE RECOVERY

b Name: ITAS-ST.LOUIS Contract: 500-01

b Code: ITSL Case No.: V17204 SDG No.: 3975

| | EPA SAMPLE NO. | S1 (TOL) # | S2 (BFB) # | S3 (DCE) # | OTHER | TOT OUT |
|---|---|---|---|---|---|---|
| 01 | 200093966 | 105 | 105 | 101 | 0 | 0 |
| 02 | 200093997 | 103 | 104 | 104 | 0 | 0 |
| 03 | VSPK01 | 106 | 104 | 99 | 0 | 0 |
| 04 | VBLK01 | 103 | 100 | 97 | 0 | 0 |

| | | QC LIMITS |
|---|---|---|
| S1 (TOL) | = Toluene-d8 | ( 88-110) |
| S2 (BFB) | = Bromofluorobenzene | ( 86-115) |
| S3 (DCE) | = 1,2-Dichloroethane-d4 | ( 76-114) |

# Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out



FORM II VOA-1

1/87 Rev.

2B
SOIL VOLATILE SURROGATE RECOVERY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V17204 SDG No.: 3975

Level:(low/med) MED

| | EPA SAMPLE NO. | S1 (TOL)# | S2 (BFB)# | S3 (DCE)# | OTHER | TOT OUT |
|---|---|---|---|---|---|---|
| 01 | 200094002 | 104 | 97 | 98 | 0 | 0 |
| 02 | VSPK02 | 104 | 101 | 102 | 0 | 0 |
| 03 | 200094002MS | 105 | 96 | 98 | 0 | 0 |
| 04 | 200094002MSD | 100 | 96 | 98 | 0 | 0 |
| 05 | VBLK02 | 103 | 100 | 92 | 0 | 0 |

| | | QC LIMITS |
|---|---|---|
| S1 (TOL) | = Toluene-d8 | ( 81-117) |
| S2 (BFB) | = Bromofluorobenzene | ( 74-121) |
| S3 (DCE) | = 1,2-Dichloroethane-d4 | ( 70-121) |

# Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V17204 SAS No.: SDG No.: 3975

Matrix Spike - EPA Sample No.: 200094002 Level:(low/med) MED

| COMPOUND | SPIKE ADDED (ug/Kg) | SAMPLE CONCENTRATION (ug/Kg) | MS CONCENTRATION (ug/Kg) | MS % REC # | QC LIMITS REC. |
|---|---|---|---|---|---|
| 1,1-Dichloroethene | 6940000 | 618000 | 7390000 | 98 | 1-234 |
| Trichloroethene | 6940000 | 0 | 8030000 | 116 | 71-157 |
| Benzene | 6940000 | 0 | 7950000 | 115 | 37-151 |
| Toluene | 6940000 | 855000 | 8210000 | 116 | 47-150 |
| Chlorobenzene | 6940000 | 0 | 9150000 | 132 | 37-160 |

| COMPOUND | SPIKE ADDED (ug/Kg) | MSD CONCENTRATION (ug/Kg) | MSD % REC # | % RPD # | QC LIMITS RPD | QC LIMITS REC. |
|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 6940000 | 9690000 | 131 | -29 * | 22 | 1-234 |
| Trichloroethene | 6940000 | 7640000 | 110 | 5 | 24 | 71-157 |
| Benzene | 6940000 | 7580000 | 109 | 5 | 21 | 37-151 |
| Toluene | 6940000 | 7810000 | 100 | 6 | 21 | 47-150 |
| Chlorobenzene | 6940000 | 8730000 | 126 | 5 | 21 | 37-160 |

# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 1 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS:

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V17204 SDG No.: 3975

Lab File ID: E0847 Lab Sample ID: QCBLK46566

Date Analyzed: 09/26/94 Time Analyzed: 1142

Matrix: (soil/water) WATER Level:(low/med) LOW

Instrument ID: MSE

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | TIME ANALYZED |
|---|---|---|---|---|
| 01 | 200093966 | 6172-004 | E0855 | 1623 |
| 02 | 200093997 | 6172-006 | E0856 | 1655 |
| 03 | VSPK01 | QCSPK46566 | E0848 | 1226 |

COMMENTS:

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V17204 SDG No.: 3975

Lab File ID: E0890 Lab Sample ID: QCBLK46802

Date Analyzed: 09/28/94 Time Analyzed: 0823

Matrix: (soil/water) SOIL Level:(low/med) MED

Instrument ID: MSE

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | TIME ANALYZED |
|---|---|---|---|---|
| 01 | 200094002 | 6172-010 | E0903 | 1549 |
| 02 | VSPK02 | QCSPK46802 | E0891 | 0906 |
| 03 | 200094002MS | 6172-010MS | E0904 | 1644 |
| 04 | 200094002MSD | 6172-010MSD | E0905 | 1728 |

COMMENTS:

9A-LCS
VOA SOIL LCS RECOVERY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V17204 SAS No.: SDG No.: 3975

EPA Sample No.: VSPK02 Level:(low/med) MED

| COMPOUND | SPIKE ADDED (ug/Kg) | LCS CONCENTRATION (ug/Kg) | LCS % REC # | QC LIMITS REC. |
|---|---|---|---|---|
| 1,1-Dichloroethene | 50 | 48 | 96 | 1-234 |
| Trichloroethene | 50 | 55 | 110 | 71-157 |
| Benzene | 50 | 55 | 110 | 37-151 |
| Toluene | 50 | 54 | 108 | 47-150 |
| Chlorobenzene | 50 | 63 | 126 | 37-160 |

\# Column to be used to flag recovery values with an asterisk.
* Values outside of QC limits.
D Detected.
NG: Not Given. Determined by QC Charting Prccedures.

FORM IX VO-1

9A-LCS
VOA WATER LCS RECOVERY

Name: ITAS-ST.LOUIS Contract: 500-01

Code: ITSL Case No.: V17204 SAS No.: SDG No.: 3975

Sample No.: VSPK01 Level:(low/med) LOW

| COMPOUND | SPIKE ADDED (ug/L) | LCS CONCENTRATION (ug/L) | LCS % REC # | QC LIMITS REC. |
|---|---|---|---|---|
| 1,1-Dichloroethene | 50 | 48 | 95 | 1-234 |
| Trichloroethene | 50 | 50 | 99 | 71-157 |
| Benzene | 50 | 50 | 100 | 37-151 |
| Toluene | 50 | 54 | 109 | 47-150 |
| Chlorobenzene | 50 | 52 | 104 | 37-160 |

Column to be used to flag recovery values with an asterisk.
Values outside of QC limits.
Detected.
Not Given. Determined by QC Charting Procedures.

FB

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200093965

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S17203 SAS No.: SDG No.: 3975

Matrix: (soil/water) WATER Lab Sample ID: 6172-003

Sample wt/vol: 1000 (g/mL) ML Lab File ID: D6037

Level: (low/med) LOW Date Received: 09/21/94

% Moisture: not dec. dec. Date Extracted: 09/23/94

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10/19/94

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 10 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 | U |
| 95-48-7 | 2-Methylphenol | 10 | U |
| 106-44-5 | 4-Methylphenol | 10 | U |
| 67-72-1 | Hexachloroethane | 10 | U |
| 98-95-3 | Nitrobenzene | 10 | U |
| 87-68-3 | Hexachlorobutadiene | 10 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 10 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 10 | U |
| 118-74-1 | Hexachlorobenzene | 10 | U |
| 87-86-5 | Pentachlorophenol | 50 | U |

ALYSIS DATA SHEET

EPA SAMPLE NO.

200093965MS

Contract: 500-01

03 SAS No.: SDG No.: 3975

Lab Sample ID: 6172-003MS

ML Lab File ID: D6045

Date Received: 09/21/94

Date Extracted: 09/23/94

SEPF Date Analyzed: 10/21/94

Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

| | | Q |
|---|---|---|
| | 10 | U |
| obenzene | 34 | |
| nol | 10 | U |
| nol | 10 | U |
| thane | 10 | U |
| e | 10 | U |
| utadiene | 10 | U |
| lorophenol | 10 | U |
| lorophenol | 10 | U |
| toluene | 40 | |
| enzene | 10 | U |
| phenol | 79 | |

HEET

EPA SAMPLE NO.

200093965MSD

500-01

SDG No.: 3975

Lab Sample ID: 6172-003MSD

Lab File ID: D6046

Date Received: 09/21/94

Date Extracted: 09/23/94

Date Analyzed: 10/21/94

Dilution Factor: 1.0

RATION UNITS:
or ug/Kg) UG/L

| | | Q |
|---|---|---|
| | 10 | U |
| | 36 | |
| | 10 | U |
| | 10 | U |
| | 10 | U |
| | 10 | U |
| | 10 | U |
| | 10 | U |
| | 10 | U |
| | 40 | |
| | 10 | U |
| | 81 | E |

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPI

2000940(

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S17203 SAS No.: SDG No.: 3975

Matrix: (soil/water) SOIL Lab Sample ID: 6172-009

Sample wt/vol: 1.10 (g/mL) G Lab File ID: H1302

Level: (low/med) MED Date Received: 09/21/94

% Moisture: not dec. dec. Date Extracted: 10/28/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 11/02/94

GPC Cleanup: (Y/N) Y pH: Dilution Factor: 10

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 91000 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 91000 | U |
| 95-48-7 | 2-Methylphenol | 91000 | U |
| 106-44-5 | 4-Methylphenol | 50000 | J |
| 67-72-1 | Hexachloroethane | 91000 | U |
| 98-95-3 | Nitrobenzene | 91000 | U |
| 87-68-3 | Hexachlorobutadiene | 91000 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 91000 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 91000 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 91000 | U |
| 118-74-1 | Hexachlorobenzene | 91000 | U |
| 87-86-5 | Pentachlorophenol | 450000 | U |

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200094001MS

Name: ITAS-ST.LOUIS Contract: 500-01

Code: ITSL Case No.: S17203 SAS No.: SDG No.: 3975

rix: (soil/water) SOIL Lab Sample ID: 6172-009MS

ple wt/vol: 1.00 (g/mL) G Lab File ID: H1303

el: (low/med) MED Date Received: 09/21/94

oisture: not dec. dec. Date Extracted: 10/28/94

raction: (SepF/Cont/Sonc) SONC Date Analyzed: 11/02/94

Cleanup: (Y/N) Y pH: Dilution Factor: 10

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 100000 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 190000 | |
| 95-48-7 | 2-Methylphenol | 230000 | |
| 106-44-5 | 4-Methylphenol | 460000 | |
| 67-72-1 | Hexachloroethane | 180000 | |
| 98-95-3 | Nitrobenzene | 200000 | |
| 87-68-3 | Hexachlorobutadiene | 200000 | |
| 88-06-2 | 2,4,6-Trichlorophenol | 260000 | |
| 95-95-4 | 2,4,5-Trichlorophenol | 230000 | |
| 121-14-2 | 2,4-Dinitrotoluene | 55000 | J |
| 118-74-1 | Hexachlorobenzene | 50000 | J |
| 87-86-5 | Pentachlorophenol | 310000 | J |

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200094001MSD

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S17203 SAS No.: SDG No.: 3975

Matrix: (soil/water) SOIL Lab Sample ID: 6172-009MSD

Sample wt/vol: 1.00 (g/mL) G Lab File ID: H1304

Level: (low/med) MED Date Received: 09/21/94

% Moisture: not dec. dec. Date Extracted: 10/28/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 11/02/94

GPC Cleanup: (Y/N) Y pH: Dilution Factor: 10

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 100000 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 140000 | |
| 95-48-7 | 2-Methylphenol | 210000 | |
| 106-44-5 | 4-Methylphenol | 440000 | |
| 67-72-1 | Hexachloroethane | 140000 | |
| 98-95-3 | Nitrobenzene | 170000 | |
| 87-68-3 | Hexachlorobutadiene | 170000 | |
| 88-06-2 | 2,4,6-Trichlorophenol | 250000 | |
| 95-95-4 | 2,4,5-Trichlorophenol | 220000 | |
| 121-14-2 | 2,4-Dinitrotoluene | 47000 | J |
| 118-74-1 | Hexachlorobenzene | 46000 | J |
| 87-86-5 | Pentachlorophenol | 280000 | J |

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSPK01

Name: ITAS-ST.LOUIS Contract: 500-01

Code: ITSL Case No.: S17203 SAS No.: SDG No.: 3975

rix: (soil/water) WATER Lab Sample ID: QCSPK46396

ple wt/vol: 1000 (g/mL) ML Lab File ID: D6036

el: (low/med) LOW Date Received:

oisture: not dec. dec. Date Extracted: 09/23/94

raction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10/19/94

Cleanup: (Y/N) N pH: Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 10 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 37 | |
| 95-48-7 | 2-Methylphenol | 10 | U |
| 106-44-5 | 4-Methylphenol | 10 | U |
| 67-72-1 | Hexachloroethane | 10 | U |
| 98-95-3 | Nitrobenzene | 10 | U |
| 87-68-3 | Hexachlorobutadiene | 10 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 10 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 39 | |
| 118-74-1 | Hexachlorobenzene | 10 | U |
| 87-86-5 | Pentachlorophenol | 73 | |

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSPK02

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S17203 SAS No.: SDG No.: 3975

Matrix: (soil/water) SOIL Lab Sample ID: QCSPK49762

Sample wt/vol: 1.00 (g/mL) G Lab File ID: H1301

Level: (low/med) MED Date Received:

% Moisture: not dec. dec. Date Extracted: 10/28/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 11/02/94

GPC Cleanup: (Y/N) Y pH: Dilution Factor: 10

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 55000 | J |
| 106-46-7 | 1,4-Dichlorobenzene | 35000 | J |
| 95-48-7 | 2-Methylphenol | 75000 | J |
| 106-44-5 | 4-Methylphenol | 170000 | |
| 67-72-1 | Hexachloroethane | 49000 | J |
| 98-95-3 | Nitrobenzene | 73000 | J |
| 87-68-3 | Hexachlorobutadiene | 75000 | J |
| 88-06-2 | 2,4,6-Trichlorophenol | 120000 | |
| 95-95-4 | 2,4,5-Trichlorophenol | 110000 | |
| 121-14-2 | 2,4-Dinitrotoluene | 32000 | J |
| 118-74-1 | Hexachlorobenzene | 42000 | J |
| 87-86-5 | Pentachlorophenol | 79000 | J |

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK01

Name: ITAS-ST.LOUIS Contract: 500-01

Code: ITSL Case No.: S17203 SAS No.: SDG No.: 3975

ix: (soil/water) WATER Lab Sample ID: QCBLK46396

le wt/vol: 1000 (g/mL) ML Lab File ID: D6035

l: (low/med) LOW Date Received:

isture: not dec. dec. Date Extracted: 09/23/94

action: (SepF/Cont/Sonc) SEPF Date Analyzed: 10/19/94

Cleanup: (Y/N) N pH: Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 10 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 | U |
| 95-48-7 | 2-Methylphenol | 10 | U |
| 106-44-5 | 4-Methylphenol | 10 | U |
| 67-72-1 | Hexachloroethane | 10 | U |
| 98-95-3 | Nitrobenzene | 10 | U |
| 87-68-3 | Hexachlorobutadiene | 10 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 10 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 10 | U |
| 118-74-1 | Hexachlorobenzene | 10 | U |
| 87-86-5 | Pentachlorophenol | 50 | U |

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLK02

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S17203 SAS No.: SDG No.: 3975

Matrix: (soil/water) SOIL Lab Sample ID: QCBLK49762

Sample wt/vol: 1.00 (g/mL) G Lab File ID: H1300

Level: (low/med) MED Date Received:

% Moisture: not dec. dec. Date Extracted: 10/28/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 11/02/94

GPC Cleanup: (Y/N) Y pH: Dilution Factor: 10

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 100000 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 100000 | U |
| 95-48-7 | 2-Methylphenol | 100000 | U |
| 106-44-5 | 4-Methylphenol | 100000 | U |
| 67-72-1 | Hexachloroethane | 100000 | U |
| 98-95-3 | Nitrobenzene | 100000 | U |
| 87-68-3 | Hexachlorobutadiene | 100000 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 100000 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 100000 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 100000 | U |
| 118-74-1 | Hexachlorobenzene | 100000 | U |
| 87-86-5 | Pentachlorophenol | 500000 | U |

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S17203 SAS No.: SDG No.: 3975

| | EPA SAMPLE NO. | S1 (NBZ)# | S2 (FBP)# | S3 (TPH)# | S4 (PHL)# | S5 (2FP)# | S6 (TBP)# | OTHER | TOT OUT |
|---|---|---|---|---|---|---|---|---|---|
| 01 | 200093965 | 71 | 78 | 91 | 36 | 52 | 74 | 0 | 0 |
| 02 | SSPK01 | 75 | 85 | 90 | 75 | 72 | 80 | 0 | 0 |
| 03 | 200093965MS | 76 | 71 | 78 | 38 | 49 | 87 | 0 | 0 |
| 04 | 200093965MSD | 77 | 74 | 85 | 38 | 48 | 85 | 0 | 0 |
| 05 | SBLK01 | 75 | 85 | 90 | 75 | 72 | 80 | 0 | 0 |

| | | QC LIMITS |
|---|---|---|
| S1 (NBZ) | = Nitrobenzene-d5 | ( 35-114) |
| S2 (FBP) | = 2-Fluorobiphenyl | ( 43-116) |
| S3 (TPH) | = Terphenyl | ( 33-141) |
| S4 (PHL) | = Phenol-d5 | ( 10-94 ) |
| S5 (2FP) | = 2-Fluorophenol | ( 21-100) |
| S6 (TBP) | = 2,4,6-Tribromophenol | ( 10-123) |

# Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogates diluted out

2D
SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S17203 SAS No.: SDG No.: 3975

Level: (low/med) MED

| | EPA SAMPLE NO. | S1 (NBZ) # | S2 (FBP) # | S3 (TPH) # | S4 (PHL) # | S5 (2FP) # | S6 (TBP) # | OTHER | TOT OUT |
|---|---|---|---|---|---|---|---|---|---|
| 01 | 200094001 | 64 | 72 | 84 | 67 | 52 | 79 | 0 | 0 |
| 02 | SSPK02 | 25 | 30 | 103 | 23 * | 12 * | 46 | 0 | 2 |
| 03 | 200094001MS | 68 | 72 | 85 | 64 | 49 | 83 | 0 | 0 |
| 04 | 200094001MSD | 55 | 65 | 77 | 59 | 41 | 74 | 0 | 0 |
| 05 | SBLK02 | 48 | 50 | 74 | 51 | 44 | 61 | 0 | 0 |

| | | QC LIMITS |
|---|---|---|
| S1 (NBZ) | = Nitrobenzene-d5 | ( 23-120) |
| S2 (FBP) | = 2-Fluorobiphenyl | ( 30-115) |
| S3 (TPH) | = Terphenyl | ( 18-137) |
| S4 (PHL) | = Phenol-d5 | ( 24-113) |
| S5 (2FP) | = 2-Fluorophenol | ( 25-121) |
| S6 (TBP) | = 2,4,6-Tribromophenol | ( 19-122) |

# Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogates diluted out

3N

LATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY TE RECOVERY

S Contract: 500-01

se No.: S17203 SDG No.: 3975 No.: 3975

ple No.: 200094001

| | SPIKE ADDED (ug/Kg) | SAMPLE CONCENTRATION (ug/Kg) | MS CONCENTRATION (ug/Kg) | MS % REC # | QC LIMITS REC. |
|---|---|---|---|---|---|
| | 250000 | 0 | 0 | 0 * | 16- 82 |
| | 250000 | 0 | 19000 | 76 | 20-124 |
| | 250000 | 0 | 23000 | 91 | 37-126 |
| (1) | 500000 | 5500 | 46000 | 91 | 26-108 |
| | 250000 | 0 | 18000 | 74 | 40-113 |
| | 250000 | 0 | 20000 | 79 | 35-180 |
| | 250000 | 0 | 20000 | 81 | 24-116 |
| 1 | 250000 | 0 | 26000 | 106 | 37-144 |
| 1 | 250000 | 0 | 23000 | 92 | 47-117 |
| | 65000 | 0 | 5500 | 84 | 39-139 |
| | 65000 | 0 | 5000 | 77 | 1-152 |
| | 250000 | 0 | 31000 | 126 | 14-176 |

| ON | MS % REC # | QC LIMITS REC. |
|---|---|---|
| | 68 | 36 97 |
| | 80 | 24- 96 |
| | 79 | 9-103 |

| # | QC LIMITS RPD | QC LIMITS REC. |
|---|---|---|
| | 28 | 36 97 |
| | 38 | 24- 96 |
| | 50 | 9-103 |

| | SPIKE ADDED (ug/Kg) | MSD CONCENTRATION (ug/Kg) | MSD % REC # | % RPD | QC LIMITS RPD | QC LIMITS REC. |
|---|---|---|---|---|---|---|
| | 250000 | 0 | 0 * | 0 | - | 16- 82 |
| | 250000 | 14000 | 56 | 30 | - | 20-124 |
| | 250000 | 21000 | 83 | 9 | - | 37-126 |
| (1) | 500000 | 44000 | 87 | 4 | - | 26-108 |
| | 250000 | 14000 | 56 | 28 | - | 40-113 |
| | 250000 | 17000 | 70 | 12 | - | 35-180 |
| | 250000 | 17000 | 70 | 14 | - | 24-116 |
| | 250000 | 25000 | 100 | 6 | - | 37-144 |
| | 250000 | 22000 | 90 | 2 | - | 47-117 |
| | 65000 | 4700 | 73 | 14 | - | 39-139 |
| | 65000 | 4600 | 71 | 8 | - | 1-152 |
| | 250000 | 28000 | 113 | 11 | - | 14-176 |

sterisk

to flag recovery values with an asterisk.
QC limits.

ined by QC Charting Procedures.

l 3-Methylphenol co-elute.
total of equal portions of each.

1/87 Rev.

of 24 outside limits

FORM III BNA

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S17203 SAS No.: SDG No.: 3975

Lab File ID: D6035 Lab Sample ID: QCBLK46396

Date Extracted: 09/23/94 Extraction:(SepF/Cont/Sonc) SEPF

Date Analyzed: 10/19/94 Time Analyzed: 2049

Matrix: (soil/water) WATER Level:(low/med) LOW

Instrument ID: MSD

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED |
|---|---|---|---|---|
| 01 | 200093965 | 6172-003 | D6037 | 10/19/94 |
| 02 | SSPK01 | QCSPK46396 | D6036 | 10/19/94 |
| 03 | 200093965MS | 6172-003MS | D6045 | 10/21/94 |
| 04 | 200093965MSD | 6172-003MSD | D6046 | 10/21/94 |

COMMENTS:

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Name: ITAS-ST.LOUIS Contract: 500-01

Code: ITSL Case No.: S17203 SAS No.: SDG No.: 3975

File ID: H1300 Lab Sample ID: QCBLK49762

e Extracted: 10/28/94 Extraction:(SepF/Cont/Sonc) SONC

e Analyzed: 11/02/94 Time Analyzed: 1429

rix: (soil/water) SOIL Level:(low/med) MED

trument ID: MSH

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED |
|---|---|---|---|---|
| 01 | 200094001 | 6172-009 | H1302 | 11/02/94 |
| 02 | SSPK02 | QCSPK49762 | H1301 | 11/02/94 |
| 03 | 200094001MS | 6172-009MS | H1303 | 11/02/94 |
| 04 | 200094001MSD | 6172-009MSD | H1304 | 11/02/94 |

MENTS:

9B-LCS
TCLP SOIL LCS RECOVERY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S17203 SAS No.: SDG No.: 3975

EPA Sample No.: SSPK02 Level:(low/med) LOW

| COMPOUND | SPIKE ADDED (ug/Kg) | LCS CONCENTRATION (ug/Kg) | LCS % REC | # | QC LIMITS REC. |
|---|---|---|---|---|---|
| Pyridine | 250000 | 55000 | 22 | | 16- 82 |
| 1,4-Dichlorobenzene | 250000 | 35000 | 14 | * | 20-124 |
| 2-Methylphenol | 250000 | 75000 | 30 | * | 37-126 |
| 4-Methylphenol (1) | 500000 | 160000 | 33 | | 26-108 |
| Hexachloroethane | 250000 | 49000 | 20 | * | 40-113 |
| Nitrobenzene | 250000 | 73000 | 29 | * | 35-180 |
| Hexachlorobutadiene | 250000 | 75000 | 30 | | 24-116 |
| 2,4,6-Trichlorophenol | 250000 | 120000 | 47 | | 37-144 |
| 2,4,5-Trichlorophenol | 250000 | 100000 | 42 | * | 47-117 |
| 2,4-Dinitrotoluene | 65000 | 32000 | 48 | | 39-139 |
| Hexachlorobenzene | 65000 | 42000 | 64 | | 1-152 |
| Pentachlorophenol | 250000 | 79000 | 32 | | 14-176 |

\# Column to be used to flag recovery values with an asterisk.
* Values outside of QC limits.
D Detected.
NG: Not Given. Determined by QC Charting Procedures.

(1) 4-Methylphenol and 3-Methylphenol co-elute; spike added reflects 500 ug/L of each.

9C-LCS
WATER SEMIVOLATILE LCS RECOVERY

Name: ITAS-ST.LOUIS Contract: 500-01

Code: ITSL Case No.: S17203 SAS No.: SDG No.: 3975

Sample No.: SSPK01 Level:(low/med) LOW

| COMPOUND | SPIKE ADDED (UG/L) | LCS CONCENTRATION (UG/L) | LCS % REC # | QC LIMITS REC. |
|---|---|---|---|---|
| 1,4-Dichlorobenzene | 50 | 37 | 74 | 19-121 |
| 2,4-Dinitrotoluene | 50 | 39 | 78 | 33-132 |
| Pentachlorophenol | 100 | 73 | 73 | 14-176 |

Column to be used to flag recovery values with an asterisk.
Values outside of QC limits.
Detected.

FORM IX SV

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK01

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V17214 SDG No.: 3975

Matrix: (soil/water) WATER Lab Sample ID: QCBLK47550

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F9907

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 10/06/94

Column: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-35-4 | 1,1-Dichloroethene | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichloroethane | 5 | U |
| 78-93-3 | 2-Butanone | 10 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 108-90-7 | Chlorobenzene | 5 | U |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VSPK01

ab Name: ITAS-ST.LOUIS Contract: 500-01

ab Code: ITSL Case No.: V17214 SDG No.: 3975

atrix: (soil/water) WATER Lab Sample ID: QCSPK47550

ample wt/vol: 5.00 (g/mL) ML Lab File ID: F9910

evel: (low/med) LOW Date Received:

Moisture: not dec. Date Analyzed: 10/06/94

olumn: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 22 | |
| 75-35-4 | 1,1-Dichloroethene | 72 | |
| 67-66-3 | Chloroform | 77 | |
| 107-06-2 | 1,2-Dichloroethane | 60 | |
| 78-93-3 | 2-Butanone | 84 | |
| 56-23-5 | Carbon Tetrachloride | 61 | |
| 79-01-6 | Trichloroethene | 61 | |
| 71-43-2 | Benzene | 59 | |
| 127-18-4 | Tetrachloroethene | 87 | |
| 108-90-7 | Chlorobenzene | 86 | |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE N

VEXTBLK01

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V17214 SDG No.: 3975

Matrix: (soil/water) WATER Lab Sample ID: QCBLK46427EX

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: F9911

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 10/06/94

Column: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-35-4 | 1,1-Dichloroethene | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichloroethane | 5 | U |
| 78-93-3 | 2-Butanone | 10 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 108-90-7 | Chlorobenzene | 5 | U |

1H
HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
200094008

Name: ITAS-St.-Louis Contract: 500.01

Code: ITSL Case No.: SAS No.: SDG No.: 3975

rix: (soil/water) SOIL Lab Sample ID: 6172-013

ple wt/vol: 49.3 (g/ml) G Lab File ID:

el: (low/med) LOW Date Sampled: 09-16-94

oisture: not dec. dec. Date Extracted: 09-29-94

raction: (SepF/Cont/Shak/Sox/Sonc/SPE) SHAKER Date Analyzed: 10-20-94

Cleanup: (Y/N) N pH: Dilution Factor: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

| CAS NO. | Compound | | Q |
|---|---|---|---|
| 94-75-7 | 2,4-D | 240 | U |
| 93-72-1 | 2,4,5-TP | 73 | U |

Concentration of analyte is less than the value given.

FORM I HERB

1H

HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200094000

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 3975

Matrix: (soil/water) SOIL Lab Sample ID: 6172-008

Sample wt/vol: 10.2 (g/ml) G Lab File ID: _____

Level: (low/med) LOW Date Sampled: 09-16-94

% Moisture: not dec. _____ dec. _____ Date Extracted: 09-29-94

Extraction: (SepF/Cont/Shak/Sox/ Sonc/SPE) SHAKER Date Analyzed: 10-20-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.2

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg | Q |
|---|---|---|---|
| 94-75-7 | 2,4-D | 240 | U |
| 93-72-1 | 2,4,5-TP | 73 | |

U: Concentration of analyte is less than the value given.

FORM I HERB

1H
HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
200094000MSD

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 3975

Matrix: (soil/water) SOIL Lab Sample ID: 6172-008MSD

Sample wt/vol: 10.3 (g/ml) G Lab File ID: _____

Level: (low/med) LOW Date Sampled: 09-16-94

% Moisture: not dec. _____ dec. _____ Date Extracted: 09-29-94

Extraction: (SepF/Cont/Shak/Sox/ Sonc/SPE) SHAKER Date Analyzed: 10-20-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.2

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg | Q |
|---|---|---|---|
| 94-75-7 | 2,4-D | 140 | J |
| 93-72-1 | 2,4,5-TP | 22 | J |

U: Concentration of analyte is less than the value given.

FORM I HERB

1H

HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200094000MS

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 3975

Matrix: (soil/water) SOIL Lab Sample ID: 6172-008MS

Sample wt/vol: 10.1 (g/ml) G Lab File ID: _____

Level: (low/med) LOW Date Sampled: 09-16-94

% Moisture: not dec. _____ dec. _____ Date Extracted: 09-29-94

Extraction: (SepF/Cont/Shak/Sox/ Sonc/SPE) SHAKER Date Analyzed: 10-20-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.2

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg | Q |
|---|---|---|---|
| 94-75-7 | 2,4-D | .250 | |
| 93-72-1 | 2,4,5-TP | 16 | J |

U: Concentration of analyte is less than the value given.

FORM I HERB

1H
HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
200093964MSD

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 3975

Matrix: (soil/water) WATER Lab Sample ID: 6172-002MSD

Sample wt/vol: 1000 (g/ml) ML Lab File ID: _____

Level: (low/med) LOW Date Sampled: 09-16-94

% Moisture: not dec. _____ dec. _____ Date Extracted: 09-22-94

Extraction: (SepF/Cont/Shak/Sox/ Sonc/SPE) SEPF Date Analyzed: 10-05-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

| CAS NO. | Compound | | Q |
|---|---|---|---|
| 94-75-7 | 2,4-D | 15 | |
| 93-72-1 | 2,4,5-TP | 1.1 | J |

U: Concentration of analyte is less than the value given.

FORM I HERB

1H

HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200093964MS

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 3975

Matrix: (soil/water) WATER Lab Sample ID: 6172-002MS

Sample wt/vol: 1000 (g/ml) ML Lab File ID: _____

Level: (low/med) LOW Date Sampled: 09-16-94

% Moisture: not dec. _____ dec. _____ Date Extracted: 09-22-94

Extraction: (SepF/Cont/Shak/Sox/ Sonc/SPE) SEPF Date Analyzed: 10-05-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

| CAS NO. | Compound | | Q |
|---|---|---|---|
| 94-75-7 | 2,4-D | .14 | |
| 93-72-1 | 2,4,5-TP | 1.1 | J |

U: Concentration of analyte is less than the value given.

FORM I HERB

1H
HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
200093964

Name: ITAS-St. Louis Contract: 500.01

Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 3975

ix: (soil/water) WATER Lab Sample ID: 6172-002

le wt/vol: 1000 (g/ml) ML Lab File ID: _____

l: (low/med) LOW Date Sampled: 09-16-94

isture: not dec._____ dec._____ Date Extracted: 09-22-94

action: (SepF/Cont/Shak/Sox/ Sonc/SPE) SEPF Date Analyzed: 10-05-94

Cleanup: (Y/N) N pH:_____ Dilution Factor: 1

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L | Q |
|---|---|---|---|
| 94-75-7 | 2,4-D | 12 | U |
| 93-72-1 | 2,4,5-TP | 1.7 | U |

Concentration of analyte is less than the value given.

FORM I HERB

2L

SOIL HERBICIDE SURROGATE RECOVERY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 3975

| | EPA SAMPLE NO. | S1 (24DCPA) # | S2 (OTHER) # |
|---|---|---|---|
| 01 | HBLK01 | 95 | |
| 02 | HSPK01 | 98 | |
| 03 | 200094000 | 57 | |
| 04 | 200094000MS | 466 * | |
| 05 | 200094000MSD | 467 * | |
| 06 | 200094008 | 331 * | |
| 07 | | | |
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ADVISORY QC LIMITS 34 - 149

S1 (24DCPA) = 2,4-Dichlorophenylacetic acid

# Column to be used to flag recovery values

* Values outside of QC limits

D Surrogates diluted out

 FORM II HERB-2

2L
WATER HERBICIDE SURROGATE RECOVERY

Name: ITAS-St. Louis Contract: 500.01

Code: ITSL Case No.: SAS No.: SDG No.: 3975

| | EPA SAMPLE NO. | S1 (24DCPA) # | S2 (OTHER) # |
|---|---|---|---|
| 01 | HBLK02 | 107 | |
| 02 | HSPK02 | 99 | |
| 03 | 200093964 | 122 | |
| 04 | 200093964MS | 109 | |
| 05 | 200093964MSD | 113 | |
| 06 | | | |
| 07 | | | |
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ADVISORY
QC LIMITS
34 - 149

S1 (24DCPA) = 2,4-Dichlorophenylacetic acid

# Column to be used to flag recovery values

• Values outside of QC limits

D Surrogates diluted out



FORM II HERB-2

3L

SOIL HERBICIDES SPIKE BLANK (LCS) RECOVERY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 3975

Spike ID: SPK 46847

| COMPOUND | SPIKE ADDED (ug/Kg) | SPIKE CONCENTRATION (ug/Kg) | SPK % REC # | QC LIMITS REC |
|---|---|---|---|---|
| 2,4-D | 200 | 230 | 116 | 31-172 |
| 2,4,5-TP | 20 | 16 | 78 | 48-151 |
| | | | | |
| | | | | |

# Column to be used to flag recovery values with an asterisk

* Values outside of QC limits

COMMENTS: Permanent QC Limits are not established for Herbicides. QC Limits are established through control charting.

FORM III HERB-2

3L

WATER HERBICIDES SPIKE BLANK (LCS) RECOVERY

Name: ITAS-St. Louis Contract: 500.01

Code: ITSL Case No.: SAS No.: SDG No.: 3975

e ID: SPK 46308

| COMPOUND | SPIKE ADDED (ug/L) | SPIKE CONCENTRATION (ug/L) | SPK % REC # | QC LIMITS REC |
|---|---|---|---|---|
| 2,4-D | 10 | 14 | 136 | 31-172 |
| 2,4,5-TP | 1.0 | 1.0 | 104 | 48-151 |
| | | | | |
| | | | | |

# Column to be used to flag recovery values with an asterisk

• Values outside of QC limits

IENTS: Permanent QC Limits are not established for Herbicides. QC Limits are established through control charting.

FORM III HERB-2

3N

SOIL HERBICIDES MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 3975

Matrix Spike - EPA Sample No.: 200094000

| COMPOUND | SPIKE ADDED (ug/Kg) | SAMPLE CONCENTRATION (ug/Kg) | MS CONCENTRATION (ug/Kg) | MS % REC # | QC LIMITS %REC |
|---|---|---|---|---|---|
| 2,4-D | 200 | 0 | 250 | 127 | 31-172 |
| 2,4,5-TP | 20 | 73 | 16 | 0 | 48-151 |

| COMPOUND | SPIKE ADDED (ug/Kg) | MSD CONCENTRATION (ug/Kg) | MS % REC # | % RPD # | QC LIMITS %REC | %RPD |
|---|---|---|---|---|---|---|
| 2,4-D | 190 | 140 | 75 | 51 | 31-172 | ND |
| 2,4,5-TP | 19 | 22 | 0 | NC | 48-151 | ND |

# Column to be used to flag recovery values with an asterisk

* Values outside of QC limits

ND Not determined

COMMENTS: Permanent QC Limits are not established for Herbicides. QC Limits for % Recovery are established through control charting.

FORM III HERB-4

3N

WATERL HERBICIDES MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Name: ITAS-St. Louis Contract: 500.01

Code: ITSL Case No.: SAS No.: SDG No.: 3975

:ix Spike - EPA Sample No.: 200093964

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE CONCENTRATION (ug/L) | MS CONCENTRATION (ug/L) | MS % REC # | QC LIMITS %REC |
|---|---|---|---|---|---|
| 2,4-D | 10 | 0 | 14 | 142 | 31-172 |
| 2,4,5-TP | 1.0 | 0 | 1.1 | 114 | 48-151 |

| COMPOUND | SPIKE ADDED (ug/L) | MSD CONCENTRATION (ug/L) | MS % REC # | % RPD # | QC LIMITS %REC | QC LIMITS %RPD |
|---|---|---|---|---|---|---|
| 2,4-D | 10 | 15 | 151 | 6 | 31-172 | ND |
| 2,4,5-TP | 1.0 | 1.1 | 113 | 1 | 48-151 | ND |

# Column to be used to flag recovery values with an asterisk

• Values outside of QC limits

ND Not determined

MENTS: Permanent QC Limits are not established for Herbicides. QC Limits for % Recovery are established through control charting.

FORM III HERB-4

4E

# HERBICIDE METHOD BLANK SUMMARY

Lab Name: ITAS-St. Louis  Contract: 500.01

Lab Code: ITSL  Case No.: _____  SAS No.: ____  SDG No.: 3975

Lab Sample ID: BLK 46847  Lab File ID: _____

Matrix: (soil/water) SOIL  Level (low/med) LOW

Date Extracted: 09-29-94  Extraction: (SepF/Cont/Sonc/ SHAKER Shak/Sox/SPE)

Date Analyzed (1): 10-20-94  Date Analyzed (2): 10-20-94

Time Analyzed (1): 06:05  Time Analyzed (2): 06:05

Instrument ID (1): GCE  Instrument ID (2): GCE

GC Column ID (1): DB-5MS  GC Column ID (2): DB-608

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, LCS, MS AND MSD:

| | EPA SAMPLE NO. | LAB SAMPLE ID | DATE ANALYZED 1 | DATE ANALYZED 2 |
|---|---|---|---|---|
| 01 | HSPK01 | SPK 46847 | 10-20-94 | 10-20-94 |
| 02 | 200094000 | 6172-008 | 10-20-94 | 10-20-94 |
| 03 | 200094000MS | 6172-008MS | 10-20-94 | 10-20-94 |
| 04 | 200094000MSD | 6172-008MSD | 10-20-94 | 10-20-94 |
| 05 | 200094008 | 6172-013 | 10-20-94 | 10-20-94 |
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COMMENTS: _____



FORM IV HERB

4E
HERBICIDE METHOD BLANK SUMMARY

ame: ITAS-St. Louis Contract: 500.01

ode: ITSL Case No.: SAS No.: SDG No.: 3975

ample ID: BLK 46308 Lab File ID:

x:(soil/water) WATER Level(low/med) LOW

Extracted: 09-22-94 Extraction: (SepF/Cont/Sonc/ SEPF Shak/Sox/SPE)

Analyzed (1): 09-30-94 Date Analyzed (2):

Analyzed (1): 09:45 Time Analyzed (2):

ument ID (1): GCE Instrument ID (2):

lumn ID (1): DB-5MS GC Column ID (2):

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, LCS, MS AND MSD:

| | EPA SAMPLE NO. | LAB SAMPLE ID | DATE ANALYZED 1 | DATE ANALYZED 2 |
|---|---|---|---|---|
| 01 | HSPK01 | SPK 46308 | 09-30- | |
| 02 | 200093964 | 6172-002 | 10-05-94 | |
| 03 | 200093964MS | 6172-002MS | 10-05-94 | |
| 04 | 200093964MSD | 6172-002MSD | 10-05-94 | |
| 05 | | | | |
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NTS:

1 of 1

FORM IV HERB

6E

HERBICIDE ORGANICS INITIAL CALIBRATION DATA

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 3975

Instrument ID: GCE GC Column ID: DB-5MS

Calibration Date(s): 09-30-94 to 09-30-94

| COMPOUD | CALIBRATION FACTOR LEVEL #1 | CALIBRATION FACTOR LEVEL #2 | CALIBRATION FACTOR LEVEL #3 | CALIBRATION FACTOR LEVEL #4 | CALIBRATION FACTOR LEVEL #5 | CALIBRATION FACTOR LEVEL #6 |
|---|---|---|---|---|---|---|
| 2,4-DCPA | 1368000 | 1489100 | 1471800 | 1297120 | 1180810 | 1015550 |
| 2,4-D | 1358500 | 1453400 | 1622000 | 1539340 | 1453310 | 1292780 |
| 2,4,5-TP | 5575000 | 6017000 | 6093000 | 6232000 | 6366500 | 5988000 |

| COMPOUND | CALIBRATION FACTOR LEVEL #7 | CALIBRATION FACTOR LEVEL #8 | CALIBRATION FACTOR LEVEL #9 | AVERAGE ESTER-CALIB FACTOR | AVERAGE ACID-CALIB. FACTOR | %RSD (<20%) |
|---|---|---|---|---|---|---|
| 2,4-DCPA | | | | 1303730 | 1392874 | 14 |
| 2,4-D | 1178553 | | | 1413983 | 1504237 | 11 |
| 2,4,5-TP | 5903575 | | | 6025011 | 6335448 | 4 |

Under AVERAGE CALIBRATION FACTOR, enter the average of the calibration factors. A minimum of five calibration levels must be used.

The %RSD must be less than 20% for the average calibration factor to be used. If the %RSD is ≥ 20%, a point-to-point calibration must be used. In this case, enter "Pt-to-Pt" under AVERAGE CALIBRATION FACTOR instead of the average calibration factor.

FORM VI HERB

6E

HERBICIDE ORGANICS INITIAL CALIBRATION DATA

Name: ITAS-St. Louis Contract: 500.01

Code: ITSL Case No.: SAS No.: SDG No.: 3975

:rument ID: GCE GC Column ID: DB-5MS

ibration Date(s): 10-04-94 to 10-04-94

| OMPOUD | CALIBRATION FACTOR LEVEL #1 | CALIBRATION FACTOR LEVEL #2 | CALIBRATION FACTOR LEVEL #3 | CALIBRATION FACTOR LEVEL #4 | CALIBRATION FACTOR LEVEL #5 | CALIBRATION FACTOR LEVEL #6 |
|---|---|---|---|---|---|---|
| ,4-DCPA | 1441600 | 1429400 | 1233540 | 1207490 | 1050535 | 0938943 |
| ,4-D | | 1582900 | 1798250 | 1416640 | 1487360 | 1332620 |
| ,4,5-TP | 5795000 | 5706000 | 6669000 | 5820000 | 6630300 | 6329450 |

| OMPOUND | CALIBRATION FACTOR LEVEL #7 | CALIBRATION FACTOR LEVEL #8 | CALIBRATION FACTOR LEVEL #9 | AVERAGE ESTER-CALIB FACTOR | AVERAGE ACID-CALIB. FACTOR | %RSD (<20%) |
|---|---|---|---|---|---|---|
| ,4-DCPA | | | | 1216918 | 1300126 | 16 |
| ,4-D | 1312938 | | | 1488451 | 1583459 | 12 |
| ,4,5-TP | 6249200 | | | 6171279 | 6489252 | 7 |

er AVERAGE CALIBRATION FACTOR, enter the average of the calibration factors. A imum of five calibration levels must be used.

%RSD must be less than 20% for the average calibration factor to be used. If the ) is ≥ 20%, a point-to-point calibration must be used. In this case, enter "Pt-to-Pt" er AVERAGE CALIBRATION FACTOR instead of the average calibration factor.

FORM VI HERB

6E

HERBICIDE ORGANICS INITIAL CALIBRATION DATA

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 3975

Instrument ID: GCE GC Column ID: DB-5MS

Calibration Date(s): 10-12-94 to 10-12-94

| COMPOUD | CALIBRATION FACTOR LEVEL #1 | CALIBRATION FACTOR LEVEL #2 | CALIBRATION FACTOR LEVEL #3 | CALIBRATION FACTOR LEVEL #4 | CALIBRATION FACTOR LEVEL #5 | CALIBRATION FACTOR LEVEL #6 |
|---|---|---|---|---|---|---|
| 2,4-DCPA | 1331000 | 1159700 | | 1091360 | 1003430 | 881575 |
| 2,4-D | | 1347800 | | 1285040 | 1209010 | 1096995 |
| 2,4,5-TP | 4180000 | 5122000 | | 5209400 | 5368800 | 5126350 |

| COMPOUND | CALIBRATION FACTOR LEVEL #7 | CALIBRATION FACTOR LEVEL #8 | CALIBRATION FACTOR LEVEL #9 | AVERAGE ESTER-CALIB FACTOR | AVERAGE ACID-CALIB. FACTOR | %RSD (<20%) |
|---|---|---|---|---|---|---|
| 2,4-DCPA | 795953 | | | 1043836 | 1115210 | 19 |
| 2,4-D | 1014175 | | | 1190604 | 1266600 | 11 |
| 2,4,5-TP | 5128025 | | | 5022429 | 5281208 | 8 |

Under AVERAGE CALIBRATION FACTOR, enter the average of the calibration factors. A minimum of five calibration levels must be used.

The %RSD must be less than 20% for the average calibration factor to be used. If the %RSD is ≥ 20%, a point-to-point calibration must be used. In this case, enter "Pt-to-Pt" under AVERAGE CALIBRATION FACTOR instead of the average calibration factor.

FORM VI HERB

6E

HERBICIDE ORGANICS INITIAL CALIBRATION DATA

Name: ITAS-St. Louis Contract: 500.01

Code: ITSL Case No.: SAS No.: SDG No.: 3975

trument ID: GCE GC Column ID: DB-608

ibration Date(s): 10-12-94 to 10-12-94

| OMPOUD | CALIBRATION FACTOR LEVEL #1 | CALIBRATION FACTOR LEVEL #2 | CALIBRATION FACTOR LEVEL #3 | CALIBRATION FACTOR LEVEL #4 | CALIBRATION FACTOR LEVEL #5 | CALIBRATION FACTOR LEVEL #6 |
|---|---|---|---|---|---|---|
| ,4-DCPA | | | | | | |
| ,4-D | | | | | | |
| ,4,5-TP | | 25975000 | | 29526400 | 30775600 | 25055050 |

| OMPOUND | CALIBRATION FACTOR LEVEL #7 | CALIBRATION FACTOR LEVEL #8 | CALIBRATION FACTOR LEVEL #9 | AVERAGE ESTER-CALIB FACTOR | AVERAGE ACID-CALIB. FACTOR | %RSD (<20%) |
|---|---|---|---|---|---|---|
| ,4-DCPA | | | | | | |
| ,4-D | | | | | | |
| ,4,5-TP | 25478000 | | | 27362010 | 28771830 | 10 |

ler AVERAGE CALIBRATION FACTOR, enter the average of the calibration factors. A iimum of five calibration levels must be used.

: %RSD must be less than 20% for the average calibration factor to be used. If the D is ≥ 20%, a point-to-point calibration must be used. In this case, enter "Pt-to-Pt" ler AVERAGE CALIBRATION FACTOR instead of the average calibration factor.

FORM VI HERB

8F

# HERBICIDE ANALYTICAL SEQUENCE SUMMARY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 3975

Instrument ID: GCE GC Column ID: DB-5MS

Dates of Analyses: 09-30-94 to 09-30-94

| | EPA SAMPLE NO. | LAB SAMPLE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|
| 01 | HERB1 | HERB1 | 09-30-94 | 07:31 |
| 02 | HERB2 | HERB2 | 09-30-94 | 07:50 |
| 03 | HERB3 | HERB3 | 09-30-94 | 08:09 |
| 04 | HERB4 | HERB4 | 09-30-94 | 08:28 |
| 05 | HERB5 | HERB5 | 09-30-94 | 08:48 |
| 06 | HERB6 | HERB6 | 09-30-94 | 09:07 |
| 07 | HERB7 | HERB7 | 09-30-94 | 09:26 |
| 08 | HBLK01 | BLK 46308 | 09-30-94 | 09:45 |
| 09 | HSPK01 | SPK 46308 | 09-30-94 | 10:05 |
| 10 | ZZZZZ | ZZZZZ | 09-30-94 | 10;24 |
| 11 | ZZZZZ | ZZZZZ | 09-30-94 | 10:43 |
| 12 | ZZZZZ | ZZZZZ | 09-30-94 | 11:02 |
| 13 | ZZZZZ | ZZZZZ | 09-30-94 | 11:22 |
| 14 | ZZZZZ | ZZZZZ | 09-30-94 | 11:41 |
| 15 | ZZZZZ | ZZZZZ | 09-30-94 | 12:00 |
| 16 | ZZZZZ | ZZZZZ | 09-30-94 | 12:19 |
| 17 | ZZZZZ | ZZZZZ | 09-30-94 | 12:39 |
| 18 | HERB4 | HERB4 | 09-30-94 | 13:17 |
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FORM VIII HERB

8F

# HERBICIDE ANALYTICAL SEQUENCE SUMMARY

) Name: ITAS-St. Louis Contract: 500.01

) Code: ITSL Case No.: SAS No.: SDG No.: 3975

;trument ID: GCE GC Column ID: DB-5MS

:es of Analyses: 10-05-94 to 10-05-94

| | EPA SAMPLE NO. | LAB SAMPLE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|
| 01 | HERB4 | HERB4 | 10-05-94 | 14:57 |
| 02 | ZZZZZ | ZZZZZ | 10-05-94 | 15:17 |
| 03 | ZZZZZ | ZZZZZ | 10-05-94 | 15:36 |
| 04 | ZZZZZ | ZZZZZ | 10-05-94 | 16:15 |
| 05 | ZZZZZ | ZZZZZ | 10-05-94 | 16:34 |
| 06 | ZZZZZ | ZZZZZ | 10-05-94 | 16:53 |
| 07 | ZZZZZ | ZZZZZ | 10-05-94 | 17:12 |
| 08 | 200093964 | 6172-002 | 10-05-94 | 17:32 |
| 09 | 200093964MS | 6172-002MS | 10-05-94 | 17:51 |
| 10 | 200093964MSD | 6172-002MSD | 10-05-94 | 18:10 |
| 11 | HERB4 | HERB4 | 10-05-94 | 18:49 |
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FORM VIII HERB

8F

# HERBICIDE ANALYTICAL SEQUENCE SUMMARY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 3975

Instrument ID: GCE GC Column ID: DB-5MS

Dates of Analyses: 10-20-94 to 10-20-94

| | EPA SAMPLE NO. | LAB SAMPLE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|
| 01 | HERB4 | HERB4 | 10-20-94 | 04:48 |
| 02 | ZZZZZ | ZZZZZ | 10-20-94 | 05:07 |
| 03 | ZZZZZ | ZZZZZ | 10-20-94 | 05:26 |
| 04 | HBLK01 | BLK 46847 | 10-20-94 | 06:05 |
| 05 | HSPK01 | SPK 46847 | 10-20-94 | 06:24 |
| 06 | 200094000 | 6172-008 | 10-20-94 | 06:44 |
| 07 | 200094000MS | 6172-008MS | 10-20-94 | 07:03 |
| 08 | 200094000MSD | 6172-008MSD | 10-20-94 | 07:22 |
| 09 | 200094008 | 6172-013 | 10-20-94 | 07:42 |
| 10 | ZZZZZ | ZZZZZ | 10-20-94 | 08:20 |
| 11 | ZZZZZ | ZZZZZ | 10-20-94 | 08:40 |
| 12 | HERB4 | HERB4 | 10-20-94 | 10:02 |
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FORM VIII HERB

9B
HERBICIDE STANDARDS SUMMARY

Name: ITAS-St. Louis Contract: 500.01

Code: ITSL Case No.: SAS No.: SDG No.: 3975

:rument ID: GCE GC Column ID: DB-5MS

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | DATE(S) OF ANALYSIS FROM: 09-30-94 TO: 09-30-94 | | | | DATE OF ANALYSIS 09-30-94 | | | |
| | TIME(S) OF ANALYSIS FROM: 00:47 TO: 03:14 | | | | TIME OF ANALYSIS 13:17 | | | |
| | | | | | EPA SAMPLE NO. (STANDARD) HERB4 | | | |
| :OMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | AVERAGE CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
| ========== | ====== | ====== | ====== | ========== | ====== | ========== | === | ===== |
| ł-DCPA | 6.50 | 6.46 | 6.54 | 1303730 | 06.51 | 1347180 | Y | 3.3 |
| ł-D | 8.04 | 7.98 | 8.10 | 1413983 | 08.04 | 1580540 | Y | 12 |
| ł,5-TP | 9.99 | 9.91 | 10.07 | 6025011 | 09.99 | 6736800 | Y | 12 |

:r AVERAGE CALIBRATION FACTOR, enter the average calibration factor from five-point calibration curve (FORM VI) if the average calibration factor used for calculations. If point-tp-point calculations were performed, :r "Pt-to-Pt".

:r QNT Y/N: enter Y if quantitation was performed, N if not performed. nust be less than or equal to 15% for quantitation.

:: Determining that no compounds were found above the CRDL is a form of ıtitation, and therefore at least one column must meet the 15% criteria.



FORM IX HERB

9B
HERBICIDE STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: ____ SDG No.: 3975

Instrument ID: GCE GC Column ID: DB-5MS

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | DATE(S) OF ANALYSIS FROM: 10-04-94 TO: 10-04-94 | | | | DATE OF ANALYSIS 10-05-94 | | | |
| | TIME(S) OF ANALYSIS FROM: 00:47 TO: 03:14 | | | | TIME OF ANALYSIS 14:57 | | | |
| | | | | | EPA SAMPLE NO. (STANDARD) HERB4 | | | |
| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | AVERAGE CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
| 2,4-DCPA | 6.48 | 6.38 | 6.58 | 1216918 | 6.51 | 1362120 | Y | 12 |
| 2,4-D | 7.99 | 7.80 | 8.18 | 1488451 | 8.04 | 1657360 | Y | 11 |
| 2,4,5-TP | 9.94 | 9.70 | 10.18 | 6171279 | 9.99 | 6761200 | Y | 10 |

Under AVERAGE CALIBRATION FACTOR, enter the average calibration factor from the five-point calibration curve (FORM VI) if the average calibration factor was used for calculations. If point-tp-point calculations were performed, enter "Pt-to-Pt".

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 15% for quantitation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 15% criteria.

9B
HERBICIDE STANDARDS SUMMARY

Name: ITAS-St. Louis Contract: 500.01

Code: ITSL Case No.: SAS No.: SDG No.: 3975

rument ID: GCE GC Column ID: DB-5MS

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | DATE(S) OF ANALYSIS FROM: 10-04-94 TO: 10-04-94 | | | | DATE OF ANALYSIS 10-05-94 | | | |
| | TIME(S) OF ANALYSIS FROM: 00:47 TO: 03:14 | | | | TIME OF ANALYSIS 18:49 | | | |
| | | | | | EPA SAMPLE NO. (STANDARD) HERB4 | | | |
| OMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | AVERAGE CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
| -DCPA | 6.48 | 6.38 | 6.58 | 1216918 | 6.48 | 1349140 | N | 11 |
| -D | 7.99 | 7.80 | 8.18 | 1488451 | 7.99 | 1580120 | N | 6 |
| ,5-TP | 9.94 | 9.70 | 10.18 | 6171279 | 9.94 | 6383200 | N | 3 |

r AVERAGE CALIBRATION FACTOR, enter the average cal.ration factor from five-point calibration curve (FORM VI) if the average calibration factor used for calculations. If point-tp-point calculations were performed, r "Pt-to-Pt".

r QNT Y/N: enter Y if quantitation was performed, N if not performed. ust be less than or equal to 15% for quantitation.

: Determining that no compounds were found above the CRDL is a form of titation, and therefore at least one column must meet the 15% criteria.



FORM IX HERB

9B
HERBICIDE STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 3975

Instrument ID: GCE GC Column ID: DB-5MS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DATE(S) OF ANALYSIS FROM: 10-12-94 TO: 10-12-94 | | | | DATE OF ANALYSIS 10-20-94 | | | |
| TIME(S) OF ANALYSIS FROM: 00:47 TO: 03:14 | | | | TIME OF ANALYSIS 10:02 | | | |
| | | | | EPA SAMPLE NO. (STANDARD) HERB4 | | | |
| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | AVERAGE CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
| 2,4-DCPA | 6.47 | 6.37 | 6.57 | 1043836 | 6.48 | 947260 | N | 9 |
| 2,4-D | 7.99 | 7.80 | 8.18 | 1190604 | 7.96 | 1173780 | N | 1 |
| 2,4,5-TP | 9.93 | 9.69 | 10.17 | 5022429 | 9.92 | 4635000 | N | 8 |

Under AVERAGE CALIBRATION FACTOR, enter the average calibration factor from the five-point calibration curve (FORM VI) if the average calibration factor was used for calculations. If point-tp-point calculations were performed, enter "Pt-to-Pt".

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 15% for quantitation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 15% criteria.



FORM IX HERB

9B
HERBICIDE STANDARDS SUMMARY

Name: ITAS-St. Louis Contract: 500.01

Code: ITSL Case No.: SAS No.: SDG No.: 3975

trument ID: GCE GC Column ID: DB-608

DATE(S) OF FROM: 10-12-94
ANALYSIS TO: 10-12-94
TIME(S) OF FROM: 00:47
ANALYSIS TO: 03:14

DATE OF ANALYSIS 10-20-94
TIME OF ANALYSIS 04:48
EPA SAMPLE NO.
(STANDARD) HERB4

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | AVERAGE CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
|---|---|---|---|---|---|---|---|---|
| 4-DCPA | | | | | | | | |
| 4-D | | | | | | | | |
| 4,5-TP | 10.19 | 9.99 | 10.39 | 27362010 | 10.19 | 36238200 | Y | 32 |

er AVERAGE CALIBRATION FACTOR, enter the average calibration factor from five-point calibration curve (FORM VI) if the average calibration factor used for calculations. If point-tp-point calculations were performed, er "Pt-to-Pt".

er QNT Y/N: enter Y if quantitation was performed, N if not performed. must be less than or equal to 15% for quantitation.

e: Determining that no compounds were found above the CRDL is a form of ntitation, and therefore at least one column must meet the 15% criteria.



FORM IX HERB

9B

HERBICIDE STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 3975

Instrument ID: GCE GC Column ID: DB-608

| | | |
|---|---|---|
| DATE(S) OF ANALYSIS FROM: 10-12-94 | TO: 10-12-94 | DATE OF ANALYSIS 10-20-94 |
| TIME(S) OF ANALYSIS FROM: 00:47 | TO: 03:14 | TIME OF ANALYSIS 10:02 |
| | | EPA SAMPLE NO. (STANDARD) HERB4 |

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | AVERAGE CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
|---|---|---|---|---|---|---|---|---|
| 2,4-DCPA | | | | | | | | |
| 2,4-D | | | | | | | | |
| 2,4,5-TP | 10.19 | 9.99 | 10.39 | 27362010 | 10.23 | 28810400 | N | 5 |

Under AVERAGE CALIBRATION FACTOR, enter the average calibration factor from the five-point calibration curve (FORM VI) if the average calibration factor was used for calculations. If point-tp-point calculations were performed, enter "Pt-to-Pt".

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 15% for quantitation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 15% criteria.



FORM IX HERB

11C
HERBICIDE CALIBRATION STANDARD CONCENTRATIONS

) Name: ITAS-St. Louis Contract: 500.01

) Code: ITSL Case No.: SAS No.: SDG No.: 3975

;trument ID: GCE GC Column ID: DB-5MS & DB-608

.ibration Date(s): 09-30-94 to 10-12-94

| :STER FORM :OMPOUD | CONCENTRATION (ng/ml) LEVEL #1 | CONCENTRATION (ng/ml) LEVEL #2 | CONCENTRATION (ng/ml) LEVEL #3 | CONCENTRATION (ng/ml) LEVEL #4 | CONCENTRATION (ng/ml) LEVEL #5 |
|---|---|---|---|---|---|
| ?,4-DCPA | 2.0 | 10.0 | 20.0 | 50.0 | 100.0 |
| ?,4-D | 2.0 | 10.0 | 20.0 | 50.0 | 100.0 |
| ?,4,5-TP | 0.2 | 1.0 | 2.0 | 5.0 | 10.0 |

| :OMPOUD | CONCENTRATION (ng/ml) LEVEL #6 | CONCENTRATION (ng/ml) LEVEL #7 | CONCENTRATION (ng/ml) LEVEL #8 | CONCENTRATION (ng/ml) LEVEL #9 | CONCENTRATION (ng/ml) LEVEL #10 |
|---|---|---|---|---|---|
| ?,4-DCPA | 200.0 | 400.0 | | | |
| ?,4-D | 200.0 | 400.0 | | | |
| ?,4,5-TP | 20.0 | 40.0 | | | |

FORM XI HERB

1H

HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HBLK01

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 3975

Matrix: (soil/water) SOIL Lab Sample ID: BLK 46847

Sample wt/vol: 50.0 (g/ml) G Lab File ID: _____

Level: (low/med) LOW Date Sampled: _____

% Moisture: not dec. _____ dec. _____ Date Extracted: 09-23-94

Extraction: (SepF/Cont/Shak/Sox/ Sonc/SPE) SHAKER Date Analyzed: 10-20-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

| CAS NO. | Compound | | Q |
|---|---|---|---|
| 94-75-7 | 2,4-D | 240 | U |
| 93-72-1 | 2,4,5-TP | 34 | U |

U: Concentration of analyte is less than the value given.

FORM I HERB

1H

HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HSPK01

Name: ITAS-St. Louis Contract: 500.01

Code: ITSL Case No.: SAS No.: SDG No.: 3975

rix: (soil/water) SOIL Lab Sample ID: SPK 46847

ple wt/vol: 50.0 (g/ml) G Lab File ID:

el: (low/med) LOW Date Sampled:

oisture: not dec. dec. Date Extracted: 09-29-94

raction: (SepF/Cont/Shak/Sox/ Sonc/SPE) SHAKER Date Analyzed: 10-20-94

Cleanup: (Y/N) N pH: Dilution Factor: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

| CAS NO. | Compound | | Q |
|---|---|---|---|
| 94-75-7 | 2,4-D | 230 | J |
| 93-72-1 | 2,4,5-TP | 16 | J |

Concentration of analyte is less than the value given.

FORM I HERB

1H

HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HBLK02

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 3975

Matrix: (soil/water) WATER Lab Sample ID: BLK 46308

Sample wt/vol: 1000 (g/ml) ML Lab File ID: _____

Level: (low/med) LOW Date Sampled: _____

% Moisture: not dec. _____ dec. _____ Date Extracted: 09-22-94

Extraction: (SepF/Cont/Shak/Sox/ Sonc/SPE) SEPF Date Analyzed: 09-30-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

| CAS NO. | Compound | | Q |
|---|---|---|---|
| 94-75-7 | 2,4-D | 12 | U |
| 93-72-1 | 2,4,5-TP | 1.7 | U |

U: Concentration of analyte is less than the value given.

FORM I HERB

1H
HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HSPK02

Name: ITAS-St.-Louis Contract: 500.01

Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 3975

ix: (soil/water) WATER Lab Sample ID: SPK 46308

le wt/vol: 1000 (g/ml) ML Lab File ID: _____

l: (low/med) LOW Date Sampled: _____

isture: not dec. _____ dec. _____ Date Extracted: 09-22-94

action: (SepF/Cont/Shak/Sox/ Sonc/SPE) SEPF Date Analyzed: 09-30-94

Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L | Q |
|---|---|---|---|
| 94-75-7 | 2,4-D | 14 | |
| 93-72-1 | 2,4,5-TP | 1.0 | J |

Concentration of analyte is less than the value given.

FORM I HERB

1D

PCB ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200094005

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 3975

Matrix: (soil/water) SOIL Lab Sample ID: 6172-011

Sample wt/vol: 30.1 (g/ml) G Lab File ID: _____

Level: (low/med) LOW Date Sampled : 09-16-94

% Moisture: not dec. _____ dec. _____ Date Extracted: 09-29-94

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10-03-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 10

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

| CAS NO. | Compound | | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | 330 | U |
| 11141-16-5 | Aroclor-1232 | 330 | U |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | 330 | U |
| 12672-29-6 | Aroclor-1248 | 330 | U |
| 11097-69-1 | Aroclor-1254 | 330 | U |
| 11096-82-5 | Aroclor-1260 | 3600 | |

FORM I PEST

1D
PCB ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
200094005MS

Name: ITAS-St. Louis Contract: 500.01

Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 3975

rix: (soil/water) SOIL Lab Sample ID: 6172-011MS

ple wt/vol: 10.0 (g/ml) G Lab File ID: _____

el: (low/med) LOW Date Sampled : 09-16-94

oisture: not dec._____ dec._____ Date Extracted: 09-29-94

raction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10-03-94

Cleanup: (Y/N) N pH: _____ Dilution Factor: 10

| AS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg | Q |
|---|---|---|---|
| 1104-28-2 | Aroclor-1221 | 1000 | U |
| 1141-16-5 | Aroclor-1232 | 1000 | U |
| 3469-21-9/12674-11-2 | Aroclor-1242/1016 | 1000 | U |
| 2672-29-6 | Aroclor-1248 | 1000 | U |
| 1097-69-1 | Aroclor-1254 | 2400 | |
| 1096-82-5 | Aroclor-1260 | 4100 | |

FORM I PEST

1D

PCB ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200094005MSD

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 3975

Matrix: (soil/water) SOIL Lab Sample ID: 6172-011MSD

Sample wt/vol: 7.4 (g/ml) G Lab File ID: _____

Level: (low/med) LOW Date Sampled : 09-16-94

% Moisture: not dec. _____ dec. _____ Date Extracted: 09-29-94

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10-03-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 10

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

| CAS NO. | Compound | | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | 1400 | U |
| 11141-16-5 | Aroclor-1232 | 1400 | U |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | 1400 | U |
| 12672-29-6 | Aroclor-1248 | 1400 | U |
| 11097-69-1 | Aroclor-1254 | 4600 | |
| 11096-82-5 | Aroclor-1260 | 8700 | E |

E: Above linear range.

FORM I PEST

1D
PCB ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 007211

200093969MS

Name: ITAS-St. Louis Contract: 500.01

Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 3975

rix: (soil/water) WATER Lab Sample ID: 6172-005MS

ple wt/vol: 500 (g/ml) ML Lab File ID: _____

el: (low/med) LOW Date Sampled : 09-16-94

oisture: not dec. _____ dec. _____ Date Extracted: 09-23-94

raction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10-03-94

Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

| AS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 1104-28-2 | Aroclor-1221 | 1.0 | U |
| 1141-16-5 | Aroclor-1232 | 1.0 | U |
| 3469-21-9/12674-11-2 | Aroclor-1242/1016 | 1.0 | U |
| 2672-29-6 | Aroclor-1248 | 1.0 | U |
| 1097-69-1 | Aroclor-1254 | 4.1 | |
| 1096-82-5 | Aroclor-1260 | 1.0 | U |

FORM I PEST

1D

PCB ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200093969MSD

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 3975

Matrix: (soil/water) WATER Lab Sample ID: 6172-005MSD

Sample wt/vol: 500 (g/ml) ML Lab File ID: _____

Level: (low/med) LOW Date Sampled : 09-16-94

% Moisture: not dec. _____ dec. _____ Date Extracted: 09-23-94

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10-03-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | 1.0 | U |
| 11141-16-5 | Aroclor-1232 | 1.0 | U |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | 1.0 | U |
| 12672-29-6 | Aroclor-1248 | 1.0 | U |
| 11097-69-1 | Aroclor-1254 | 3.9 | |
| 11096-82-5 | Aroclor-1260 | 1.0 | U |

FORM I PEST

1D
PCB ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
200093969

) Name: ITAS-St. Louis Contract: 500.01

) Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 3975

:rix: (soil/water) WATER Lab Sample ID: 6172-005

ıple wt/vol: 1000 (g/ml) ML Lab File ID: _____

vel: (low/med) LOW Date Sampled : 09-16-94

Moisture: not dec. _____ dec. _____ Date Extracted: 09-23-94

:raction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10-03-94

: Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

| :AS NO. | Compound | | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | 1.0 | U |
| 11141-16-5 | Aroclor-1232 | 1.0 | U |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | 1.0 | U |
| 12672-29-6 | Aroclor-1248 | 1.0 | U |
| 11097-69-1 | Aroclor-1254 | 1.0 | U |
| 11096-82-5 | Aroclor-1260 | 1.0 | U |

FORM I PEST

2F

SOIL PCB SURROGATE RECOVERY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 3975

Level:(low/med) LOW

| | EPA SAMPLE NO. | S1 (DBC)# | S2 (TCMX)# |
|---|---|---|---|
| 01 | PBLK02 | 78 | |
| 02 | PSPK02 | 77 | |
| 03 | 200094005 | I | |
| 04 | 200094005MS | I | |
| 05 | 200094005MSD | I | |
| 06 | | | |
| 07 | | | |
| 08 | | | |
| 09 | | | |
| 10 | | | |
| 11 | | | |
| 12 | | | |
| 13 | | | |
| 14 | | | |
| 15 | | | |
| 16 | | | |
| 17 | | | |

ADVISORY QC LIMITS ( D-259)

S1 (DBC) = Dibutylchlorendate
S2 (TCMX) = Tetrachlorom-m-xylene

# Column to be used to flag recovery values

* Values outside of QC limits

D Surrogates diluted out

I Interfernce with high AR1260

2E
WATER PCB SURROGATE RECOVERY

Name: ITAS-St. Louis Contract: 500.01

Code: ITSL Case No.: SAS No.: SDG No.: 3975

el:(low/med) LOW

| | EPA SAMPLE NO. | S1 (DBC)# | S2 (TCMX)# |
|---|---|---|---|
| 01 | PBLK01 | 153 | |
| 02 | PSPK01 | 93 | |
| 03 | 200093969 | 82 | |
| 04 | 200093969MS | 88 | |
| 05 | 200093969MSD | 85 | |
| 06 | | | |
| 07 | | | |
| 08 | | | |
| 09 | | | |
| 10 | | | |
| 11 | | | |
| 12 | | | |
| 13 | | | |
| 14 | | | |
| 15 | | | |
| 16 | | | |
| 17 | | | |

ADVISORY
QC LIMITS
( D-185)

S1 (DBC) = Dibutylchlorendate
S2 (TCMX) = Tetrachlorom-m-xylene

# Column to be used to flag recovery values

• Values outside of QC limits

D Surrogates diluted out

I Interference



FORM II PEST-2

1/87 Rev.

3E
WATER PCB SPIKE BLANK(LCS) RECOVERY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 3875

Spike Blank No.: SPK 46568

| COMPOUND | SPIKE ADDED (ug/L) | SPIKE CONCENTRATION (ug/L) | SPK % REC # | QC LIMITS REC. |
|---|---|---|---|---|
| Aroclor-1254 | 5.0 | 4.4 | 87 | 29-131 |

# Column to be used to flag recovery and RPD values with an asterisk

• Values outside of QC limits

ND: not determined

Spike Recovery: 0 out of 1 outside limits

COMMENTS:

FORM III PEST-2

3F
SOIL PCB SPIKE BLANK(LCS) RECOVERY

Name: ITAS-St. Louis Contract: 500.01

Code: ITSL Case No.: SAS No.: SDG No.: 3975

ke Blank No.: SPK 46906

| COMPOUND | SPIKE ADDED (ug/Kg) | SPIKE CONCENTRATION (ug/Kg) | SPK % REC # | QC LIMITS REC. |
|---|---|---|---|---|
| Aroclor-1254 | 170 | 140 | 88 | 29-131 |
| | | | | |
| | | | | |

# Column to be used to flag recovery and RPD values with an asterisk

• Values outside of QC limits

ND: not determined

Spike Recovery: 0 out of 1 outside limits

COMMENTS:

FORM III PEST-2

3E

WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: ____ SDG No.: 3975

Matrix Spike - EPA Sample No.: 200093969 Level: (low/med) LOW

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE CONCENTRATION (ug/L) | MS CONCENTRATION (ug/L) | MS % REC # | QC LIMITS REC. |
|---|---|---|---|---|---|
| Aroclor-1254 | 5.0 | 0.0 | 4.1 | 81 | 29-131 |
| | | | | | |
| | | | | | |

| COMPOUND | SPIKE ADDED (ug/L) | MSD CONCENTRATION (ug/L) | MSD % REC # | % RPD | QC LIMITS RPD | QC LIMITS REC. |
|---|---|---|---|---|---|---|
| Aroclor 1254 | 5.0 | 3.9 | 79 | 2 | | 29-131 |
| | | | | | | |
| | | | | | | |

# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: _____ out of _____ outside limits
Spike Recovery: 0 out of 2 outside limits

COMMENTS: _____

FORM III PEST-2

3F

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Name: ITAS-St. Louis Contract: 500.01

Code: ITSL Case No.: SAS No.: SDG No.: 3975

ix Spike - EPA Sample No.: 200094005 Level:(low/med) LOW

| COMPOUND | SPIKE ADDED (ug/kg) | SAMPLE CONCENTRATION (ug/Kg) | MS CONCENTRATION (ug/Kg) | MS % REC # | QC LIMITS REC. |
|---|---|---|---|---|---|
| Aroclor-1254 | 250 | 0.0 | 2400 | 968 * | 29-131 |

| COMPOUND | SPIKE ADDED (ug/kg) | MSD CONCENTRATION (ug/Kg) | MSD % REC # | % RPD | QC LIMITS RPD | QC LIMITS REC. |
|---|---|---|---|---|---|---|
| Aroclor 1254 | 340 | 4600 | 1369 * | 63 | | 29-131 |

# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: out of outside limits

Spike Recovery: 2 out of 2 outside limits

COMMENTS: AR 1260 interference.

FORM III PEST-2

4C
PCB METHOD BLANK SUMMARY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 3975

Lab Sample ID: BLK 46568 Lab File ID:

Matrix: (soil/water) WATER Level (low/med) LOW

Date Extracted: 09-23-94 Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed (1): 10-03-94 Date Analyzed (2):

Time Analyzed (1): 17:33 Time Analyzed (2):

Instrument ID (1): GCA Instrument ID (2):

GC Column ID (1): DB-5MS GC Column ID (2):

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

| | EPA SAMPLE NO. | LAB SAMPLE ID | DATE ANALYZED 1 | DATE ANALYZED 2 |
|---|---|---|---|---|
| 01 | PSPK01 | SPK46568 | 10-03-94 | |
| 02 | 200093969 | 6172-005 | 10-03-94 | |
| 03 | 200093969MS | 6172-005MS | 10-03-94 | |
| 04 | 200093969MSD | 6172-005MSD | 10-03-94 | |
| 05 | | | | |
| 06 | | | | |
| 07 | | | | |
| 08 | | | | |
| 09 | | | | |
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COMMENTS:



FORM IV PEST 1/87 Rev.

4C
PCB METHOD BLANK SUMMARY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 3975

Lab Sample ID: BLK 46906 Lab File ID:

Matrix:(soil/water) WATER Level(low/med) LOW

Date Extracted: 09-29-94 Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed (1): 10-03-94 Date Analyzed (2): 10-03-94

Time Analyzed (1): 20:43 Time Analyzed (2): 20:43

Instrument ID (1): GCA Instrument ID (2): GCA

GC Column ID (1): DB-608 GC Column ID (2): DB-5MS

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

| | EPA SAMPLE NO. | LAB SAMPLE ID | DATE ANALYZED 1 | DATE ANALYZED 2 |
|---|---|---|---|---|
| 01 | PSPK02 | SPK46906 | 10-03-94 | 10-03-94 |
| 02 | 200093969 | 6172-011 | 10-03-94 | |
| 03 | 200093969MS | 6172-011MS | 10-03-94 | |
| 04 | 200093969MSD | 6172-011MSD | 10-03-94 | |
| 05 | | | | |
| 06 | | | | |
| 07 | | | | |
| 08 | | | | |
| 09 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
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| 21 | | | | |
| 22 | | | | |
| 23 | | | | |

COMMENTS:



FORM IV PEST 1/87 Rev.

6F

# PCB ORGANICS INITIAL CALIBRATION DATA

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 3975

Instrument ID: GCA GC Column ID: DB-5MS

Calibration Date(s): 09-21-94 to 09-21-94
to

| COMPOUND | CALIBRAT. FACTOR LEVEL #1 | CALIBRAT. FACTOR LEVEL #2 | CALIBRAT. FACTOR LEVEL #3 | CALIBRAT. FACTOR LEVEL #4 | CALIBRAT. FACTOR LEVEL #5 | CALIBRAT. FACTOR LEVEL #6 |
|---|---|---|---|---|---|---|
| AR 1221 | 353020 | 322310 | 289696 | 250200 | 221124 | |
| AR 1232 | | 565400 | 509504 | 478040 | 446037 | 356943 |
| AR 1242/1016 | 921380 | 865360 | 779896 | 650160 | 579830 | |
| AR 1248 | | 1305230 | 1149992 | 989930 | 880977 | 810439 |
| AR 1254 | 1571020 | 1406180 | 1241100 | 1112916 | 1018731 | |
| AR 1260 | 1597760 | 1468760 | 1376840 | 1146614 | 1024630 | |
| TCMX | 7660000 | 7678500 | 6878400 | 6207700 | 6002450 | 5691333 |
| DBC | | 3208350 | 2685820 | 2256850 | 2040080 | 1873773 |

| COMPOUND | CALIBRAT. FACTOR LEVEL #7 | CALIBRAT. FACTOR LEVEL #8 | CALIBRAT. FACTOR LEVEL #9 | CALIBRAT. FACTOR LEVEL #10 | AVERAGE CALBRAT. FACTOR | %RSD (<20%) |
|---|---|---|---|---|---|---|
| AR 1221 | | | | | 287270 | 19 |
| AR 1232 | | | | | 471185 | 16 |
| AR 1242/1016 | | | | | 759325 | 19 |
| AR 1248 | | | | | 1027314 | 19.6 |
| AR 1254 | | | | | 1269989 | 18 |
| AR 1260 | | | | | 1322921 | 18 |
| TCMX | | | | | 6686397 | 13 |
| DBC | | | | | PT-TO-PT | 22 |

Under AVERAGE CALIBRATION FACTOR, enter the average of the calibration factors.

The %RSD must be less than 20% for the average calibration factor to be used. If the %RSD is ≥ 20%, a point-to-point calibration must be used. In this case, enter "Pt-to-Pt" under AVERAGE CALIBRATION FACTOR instead of the average calibration factor.

FORM VI PCB-1

1D
PCB ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
PBLK02

ıb Name: ITAS-St. Louis Contract: 500.01

ıb Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 3975

ıtrix: (soil/water) SOIL Lab Sample ID: BLK 46906

ımple wt/vol: 30.0 (g/ml) G Lab File ID: _____

ıvel: (low/med) LOW Date Sampled : _____

Moisture: not dec. _____ dec. _____ Date Extracted: 09-29-94

ıtraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10-03-94

PC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | 33 | U |
| 11141-16-5 | Aroclor-1232 | 33 | U |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | 33 | U |
| 12672-29-6 | Aroclor-1248 | 33 | U |
| 11097-69-1 | Aroclor-1254 | 33 | U |
| 11096-82-5 | Aroclor-1260 | 33 | U |

FORM I PEST

1D

# PCB ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PSPK02

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 3975

Matrix: (soil/water) SOIL Lab Sample ID: SPK 46906

Sample wt/vol: 30.0 (g/ml) G Lab File ID: _____

Level: (low/med) LOW Date Sampled : _____

% Moisture: not dec. _____ dec. _____ Date Extracted: 09-29-94

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10-03-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | 33 | U |
| 11141-16-5 | Aroclor-1232 | 33 | U |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | 33 | U |
| 12672-29-6 | Aroclor-1248 | 33 | U |
| 11097-69-1 | Aroclor-1254 | 140 | |
| 11096-82-5 | Aroclor-1260 | 33 | U |

FORM I PEST

6F

# PCB ORGANICS INITIAL CALIBRATION DATA

ɔ Name: ITAS-St. Louis Contract: 500.01

ɔ Code: ITSL Case No.: SAS No.: SDG No.: 3975

strument ID: GCA GC Column ID: DB-608

libration Date(s): 09-21-94 to 09-21-94
to

| COMPOUND | CALIBRAT. FACTOR LEVEL #1 | CALIBRAT. FACTOR LEVEL #2 | CALIBRAT. FACTOR LEVEL #3 | CALIBRAT. FACTOR LEVEL #4 | CALIBRAT. FACTOR LEVEL #5 | CALIBRAT. FACTOR LEVEL #6 |
|---|---|---|---|---|---|---|
| AR 1221 | 276020 | 203080 | 230092 | 196410 | 177455 | |
| AR 1232 | | 415260 | 380884 | 353860 | 328822 | 303381 |
| AR 1242/1016 | | 775630 | 693900 | 588966 | 513549 | 497294 |
| AR 1248 | | 802250 | 713648 | 630270 | 573260 | 526305 |
| AR 1254 | 591580 | 545610 | 513788 | 467932 | 419976 | 410034 |
| AR 1260 | 948840 | 893940 | 880908 | 733946 | 664854 | 631646 |
| TCMX | 5602000 | 5387000 | 5111200 | 4664200 | 4597750 | 4488800 |
| DBC | 4093400 | 3539500 | 2990360 | 2537750 | 2290255 | 2102833 |

| COMPOUND | CALIBRAT. FACTOR LEVEL #7 | CALIBRAT. FACTOR LEVEL #8 | CALIBRAT. FACTOR LEVEL #9 | CALIBRAT. FACTOR LEVEL #10 | AVERAGE CALBRAT. FACTOR | %RSD (<20%) |
|---|---|---|---|---|---|---|
| AR 1221 | | | | | 216611 | 18 |
| AR 1232 | | | | | 356441 | 12 |
| AR 1242/1016 | | | | | 613868 | 19 |
| AR 1248 | | | | | 649147 | 17 |
| AR 1254 | | | | | 491487 | 15 |
| AR 1260 | | | | | 792356 | 17 |
| TCMX | | | | | 4975158 | 9 |
| DBC | | | | | PT-TO-PT | 26 |

ler AVERAGE CALIBRATION FACTOR, enter the average of the calibration factors.

e %RSD must be less than 20% for the average calibration factor to be used. If the SD is ≥ 20%, a point-to-point calibration must be used. In this case, enter "Pt-to-Pt" ler AVERAGE CALIBRATION FACTOR instead of the average calibration factor.

FORM VI PCB-1

8E

# PCB EVALUATION STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 3975

Instrument ID: GC A GC Column ID: DB-5MS/DB-608

Dates of Analyses: 10-03-94 to 10-04-94

| | EPA SAMPLE NO. | LAB SAMPLE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|
| 01 | AR2148-3 | AR2148-3 | 10-03-94 | 15:52 |
| 02 | AR3254-3 | AR3254-3 | 10-03-94 | 16:06 |
| 03 | AR4260-3 | AR4260-3 | 10-03-94 | 16:21 |
| 04 | PBLK01 | BLK 46568 | 10-03-94 | 17:33 |
| 05 | PSPK01 | SPK 46568 | 10-03-94 | 17:47 |
| 06 | 200093969 | 6172-005 | 10-03-94 | 18:02 |
| 07 | 200093969MS | 6172-005MS | 10-03-94 | 18:17 |
| 08 | 200093969MSD | 6172-005MSD | 10-03-94 | 18:31 |
| 09 | ZZZZZ | ZZZZZ | 10-03-94 | 19:00 |
| 10 | ZZZZZ | ZZZZZ | 10-03-94 | 19:15 |
| 11 | ZZZZZ | ZZZZZ | 10-03-94 | 19:30 |
| 12 | ZZZZZ | ZZZZZ | 10-03-94 | 19:44 |
| 13 | PSPK02 | SPK 46906 | 10-03-94 | 19:59 |
| 14 | AR3254-3 | AR3254-3 | 10-03-94 | 20:28 |
| 15 | PBLK02 | BLK 46906 | 10-03-94 | 20:43 |
| 16 | ZZZZZ | ZZZZZ | 10-03-94 | 20:57 |
| 17 | ZZZZZ | ZZZZZ | 10-03-94 | 21:12 |
| 18 | ZZZZZ | ZZZZZ | 10-03-94 | 21:26 |
| 19 | ZZZZZ | ZZZZZ | 10-03-94 | 21:41 |
| 20 | ZZZZZ | ZZZZZ | 10-03-94 | 21:55 |
| 21 | ZZZZZ | ZZZZZ | 10-03-94 | 22:10 |
| 22 | ZZZZZ | ZZZZZ | 10-03-94 | 22:25 |
| 23 | ZZZZZ | ZZZZZ | 10-03-94 | 22:39 |
| 24 | ZZZZZ | ZZZZZ | 10-03-94 | 22:54 |
| 25 | AR3254-3 | AR3254-3 | 10-03-94 | 11:51 |
| 26 | 200094005 | 6172-011 | 10-03-94 | 12:19 |
| 27 | 200094005MS | 6172-011MS | 10-03-94 | 12:36 |
| 27 | 200094005MSD | 6172-011MSD | 10-03-94 | 12:51 |
| 23 | ZZZZZ | ZZZZZ | 10-03-94 | 13:05 |
| 24 | ZZZZZ | ZZZZZ | 10-03-94 | 13:20 |
| 25 | AR3254-3 | AR3254-3 | 10-03-94 | 14:44 |

9

# PESTICIDE/PCB STANDARDS SUMMARY

Name: ITAS-St. Louis Contract: 500.01

Code: ITSL Case No.: SAS No.: SDG No.: 3975

rument ID: GC A GC Column ID: DB-5MS

| | DATE(S) OF ANALYSIS FROM: 09-21-94 TO: 09-21-94 | | | | DATE OF ANALYSIS 10-03-94 | | | |
|---|---|---|---|---|---|---|---|---|
| | TIME(S) OF ANALYSIS FROM: 01:34 TO: 06:11 | | | | TIME OF ANALYSIS VARIES | | | |
| | | | | | EPA SAMPLE NO. (STANDARD) DAILY CAL | | | |
| OMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
| 1221 | 2.25 | 2.16 | 2.34 | 287270 | 2.25 | 272844 | Y | 5 |
| 1232 | 2.72 | 2.61 | 2.83 | 471185 | 2.72 | 520548 | Y | 10 |
| 1242/1016 | 2.26 | 2.23 | 2.29 | 759325 | 2.26 | 787468 | Y | 4 |
| 1248 | 3.18 | 3.10 | 3.26 | 1027314 | 3.18 | 1094700 | Y | 6 |
| 1254 | 4.77 | 4.71 | 4.83 | 1269989 | 4.77 | 1272980 | Y | 0 |
| 1260 | 7.37 | 7.28 | 7.46 | 1322921 | 7.37 | 1306916 | Y | 1 |
| | 9.31 | 9.23 | 9.39 | PT-TO-PT | 9.31 | PT-TO-PT | Y | 3 |
| DX | | | | | | | | |

:r QNT Y/N: enter Y if quantitation was performed, N if not performed.
ıust be less than or equal to 20.0% for quantitation, and less than
:qual to 20.0% for confirmation.

:: Determining that no compounds were found above the CRDL is a form of
ıtitation, and therefore at least one column must meet the 20.0% criteria.

multicomponent analytes, the single largest peak that is characteristic
:he component should be used to establish retention time and %D.
ıtification of such analytes is based primarily on pattern recognition.



FORM IX PEST

# PESTICIDE/PCB STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: ____ SDG No.: 3975

Instrument ID: GC A GC Column ID: DB-5MS

| DATE(S) OF ANALYSIS | FROM: 09-21-94 | TO: 09-21-94 | DATE OF ANALYSIS | 10-03-94 |
|---|---|---|---|---|
| TIME(S) OF ANALYSIS | FROM: 01:34 | TO: 06:11 | TIME OF ANALYSIS | 20:28 |
| | | | EPA SAMPLE NO. (STANDARD) | AR3254-3 |

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
|---|---|---|---|---|---|---|---|---|
| AR 1221 | 2.25 | 2.16 | 2.34 | 287270 | | | | |
| AR 1232 | 2.72 | 2.61 | 2.83 | 471185 | 2.72 | 559168 | N | 19 |
| AR 1242/1016 | 2.26 | 2.23 | 2.29 | 759325 | | | | |
| AR 1248 | 3.18 | 3.10 | 3.26 | 1027314 | | | | |
| AR 1254 | 4.77 | 4.71 | 4.83 | 1269989 | 4.77 | 1366996 | Y | 8 |
| AR 1260 | 7.37 | 7.28 | 7.46 | 1322921 | | | | |
| DBC | 9.31 | 9.23 | 9.39 | PT-TO-PT | 9.32 | PT-TO-PT | Y | 8 |
| TCMX | | | | | | | | |

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 20.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 20.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.



FORM IX PEST

9

# PESTICIDE/PCB STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 3975

Instrument ID: GC A GC Column ID: DB-5MS

DATE(S) OF ANALYSIS FROM: 09-21-94 TO: 09-21-94
TIME(S) OF ANALYSIS FROM: 01:34 TO: 06:11

DATE OF ANALYSIS 10-04-94
TIME OF ANALYSIS 11:51
EPA SAMPLE NO. (STANDARD) AR3254-3

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
|---|---|---|---|---|---|---|---|---|
| AR 1221 | 2.25 | 2.16 | 2.34 | 287270 | | | | |
| AR 1232 | 2.72 | 2.61 | 2.83 | 471185 | 2.73 | 350256 | N | 26 |
| AR 1242/1016 | 2.26 | 2.23 | 2.29 | 759325 | | | | |
| AR 1248 | 3.18 | 3.10 | 3.26 | 1027314 | | | | |
| AR 1254 | 4.77 | 4.71 | 4.83 | 1269989 | 4.79 | 897492 | N | 29 |
| AR 1260 | 7.37 | 7.28 | 7.46 | 1322921 | | | | |
| DBC | 9.31 | 9.23 | 9.39 | PT-TO-PT | 9.35 | PT-TO-PT | N | 53 |
| TCMX | | | | | | | | |

Under QNT Y/N: enter Y if quantitation was performed, N if not performed.
%D must be less than or equal to 20.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 20.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.

# PESTICIDE/PCB STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: ____ SDG No.: 3975

Instrument ID: GC A GC Column ID: DB-5MS

| | DATE(S) OF ANALYSIS FROM: 09-21-94 TO: 09-21-94 TIME(S) OF ANALYSIS FROM: 01:34 TO: 06:11 | | | | DATE OF ANALYSIS 10-04-94 TIME OF ANALYSIS 14:44 EPA SAMPLE NO. (STANDARD) AR3254-3 | | | |
|---|---|---|---|---|---|---|---|---|
| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
| AR 1221 | 2.25 | 2.16 | 2.34 | 287270 | | | | |
| AR 1232 | 2.72 | 2.61 | 2.83 | 471185 | 2.73 | 398936 | N | 15 |
| AR 1242/1016 | 2.26 | 2.23 | 2.29 | 759325 | | | | |
| AR 1248 | 3.18 | 3.10 | 3.26 | 1027314 | | | | |
| AR 1254 | 4.77 | 4.71 | 4.83 | 1269989 | 4.79 | 1247128 | N | 2 |
| AR 1260 | 7.37 | 7.28 | 7.46 | 1322921 | | | | |
| DBC | 9.31 | 9.23 | 9.39 | PT-TO-PT | 9.36 | PT-TO-PT | N | 50 |
| TCMX | | | | | | | | |

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 20.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 20.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.



FORM IX PEST

9

# PESTICIDE/PCB STANDARDS SUMMARY

b Name: ITAS-St. Louis Contract: 500.01

b Code: ITSL Case No.: SAS No.: SDG No.: 3975

strument ID: GC A GC Column ID: DB-608

| | DATE(S) OF ANALYSIS FROM: 09-21-94 TO: 09-21-94 | | | TIME(S) OF ANALYSIS FROM: 01:34 TO: 06:11 | DATE OF ANALYSIS 10-03-94 TIME OF ANALYSIS VARIES EPA SAMPLE NO. (STANDARD) DAILY CAL | | | |
|---|---|---|---|---|---|---|---|---|
| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
| R 1221 | 2.25 | 1.87 | 1.99 | 216611 | 1.93 | 213440 | Y | 1 |
| R 1232 | 2.31 | 2.23 | 2.39 | 356441 | 2.31 | 332548 | Y | 7 |
| R 1242/1016 | 3.79 | 3.73 | 3.85 | 613868 | 3.79 | 536856 | Y | 12 |
| R 1248 | 3.46 | 3.40 | 3.52 | 649147 | 3.46 | 662504 | Y | 2 |
| R 1254 | 4.77 | 4.71 | 4.83 | 491487 | 4.77 | 512824 | Y | 4 |
| R 1260 | 6.80 | 6.71 | 6.89 | 792356 | 6.80 | 853984 | Y | 8 |
| BC | 7.20 | 7.14 | 7.26 | 2925683 | 7.20 | 3036500 | Y | 2 |
| CMX | | | | | | | | |

der QNT Y/N: enter Y if quantitation was performed, N if not performed.
must be less than or equal to 20.0% for quantitation, and less than
equal to 20.0% for confirmation.

te: Determining that no compounds were found above the CRDL is a form of
antitation, and therefore at least one column must meet the 20.0% criteria.

r multicomponent analytes, the single largest peak that is characteristic
the component should be used to establish retention time and %D.
entification of such analytes is based primarily on pattern recognition.



FORM IX PEST

# PESTICIDE/PCB STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: ____ SDG No.: 3975

Instrument ID: GC A GC Column ID: DB-608

DATE(S) OF ANALYSIS FROM: 09-21-94 TO: 09-21-94
TIME(S) OF ANALYSIS FROM: 01:34 TO: 06:11

DATE OF ANALYSIS 10-03-94
TIME OF ANALYSIS 20:28
EPA SAMPLE NO. (STANDARD) AR3254-3

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
|---|---|---|---|---|---|---|---|---|
| AR 1221 | 1.93 | 1.87 | 1.99 | 216611 | | | | |
| AR 1232 | 2.31 | 2.23 | 2.39 | 356441 | 2.32 | 357508 | Y | 0 |
| AR 1242/1016 | 3.79 | 3.73 | 3.85 | 613868 | | | | |
| AR 1248 | 3.46 | 3.40 | 3.52 | 649147 | | | | |
| AR 1254 | 4.77 | 4.71 | 4.83 | 491487 | 4.78 | 555744 | Y | 13 |
| AR 1260 | 6.80 | 6.71 | 6.89 | 792356 | | | | |
| DBC | 7.20 | 7.14 | 7.26 | 2925683 | 7.21 | 3262900 | Y | 13 |
| TCMX | | | | | | | | |

Under QNT Y/N: enter Y if quantitation was performed, N if not performed.
%D must be less than or equal to 20.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 20.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.



FORM IX PEST

9

# PESTICIDE/PCB STANDARDS SUMMARY

b Name: ITAS-St. Louis Contract: 500.01

b Code: ITSL Case No.: SAS No.: SDG No.: 3975

strument ID: GC A GC Column ID: DB-608

DATE(S) OF ANALYSIS FROM: 09-21-94 TO: 09-21-94
TIME(S) OF ANALYSIS FROM: 01:34 TO: 06:11

DATE OF ANALYSIS 10-04-94
TIME OF ANALYSIS 11:51
EPA SAMPLE NO. (STANDARD) AR3254-3

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
|---|---|---|---|---|---|---|---|---|
| R 1221 | 1.93 | 1.87 | 1.99 | 216611 | | | | |
| R 1232 | 2.31 | 2.23 | 2.39 | 356441 | 2.32 | 331924 | Y | 7 |
| R 1242/1016 | 3.79 | 3.73 | 3.85 | 613868 | | | | |
| R 1248 | 3.46 | 3.40 | 3.52 | 649147 | | | | |
| R 1254 | 4.77 | 4.71 | 4.83 | 491487 | 4.80 | 463924 | Y | 6 |
| R 1260 | 6.80 | 6.71 | 6.89 | 792356 | | | | |
| BC | 7.20 | 7.14 | 7.26 | 2925683 | 7.23 | 833400 | N | 44 |
| CMX | | | | | | | | |

der QNT Y/N: enter Y if quantitation was performed, N if not performed.
must be less than or equal to 20.0% for quantitation, and less than equal to 20.0% for confirmation.

te: Determining that no compounds were found above the CRDL is a form of antitation, and therefore at least one column must meet the 20.0% criteria.

r multicomponent analytes, the single largest peak that is characteristic the component should be used to establish retention time and %D. lentification of such analytes is based primarily on pattern recognition.



FORM IX PEST

# PESTICIDE/PCB STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: ____ SDG No.: 3975

Instrument ID: GC A GC Column ID: DB-608

DATE(S) OF ANALYSIS FROM: 09-21-94 TO: 09-21-94
TIME(S) OF ANALYSIS FROM: 01:34 TO: 06:11

DATE OF ANALYSIS 10-04-94
TIME OF ANALYSIS 11:51
EPA SAMPLE NO. (STANDARD) AR3254-3

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
|---|---|---|---|---|---|---|---|---|
| AR 1221 | 1.93 | 1.87 | 1.99 | 216611 | | | | |
| AR 1232 | 2.31 | 2.23 | 2.39 | 356441 | 2.32 | 331924 | Y | 7 |
| AR 1242/1016 | 3.79 | 3.73 | 3.85 | 613868 | | | | |
| AR 1248 | 3.46 | 3.40 | 3.52 | 649147 | | | | |
| AR 1254 | 4.77 | 4.71 | 4.83 | 491487 | 4.80 | 463924 | Y | 6 |
| AR 1260 | 6.80 | 6.71 | 6.89 | 792356 | | | | |
| DBC | 7.20 | 7.14 | 7.26 | 2925683 | 7.23 | 833400 | N | 44 |
| TCMX | | | | | | | | |

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 20.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 20.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.

9

# PESTICIDE/PCB STANDARDS SUMMARY

) Name: ITAS-St. Louis Contract: 500.01

) Code: ITSL Case No.: SAS No.: SDG No.: 3975

trument ID: GC A GC Column ID: DB-608

| | DATE(S) OF ANALYSIS FROM: 09-21-94 TO: 09-21-94 TIME(S) OF ANALYSIS FROM: 01:34 TO: 06:11 | | | | DATE OF ANALYSIS 10-04-94 TIME OF ANALYSIS 14:44 EPA SAMPLE NO. (STANDARD) AR3254-3 | | | |
|---|---|---|---|---|---|---|---|---|
| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
| ========== | ====== | ====== | ====== | ========== | ====== | ========== | === | ===== |
| t 1221 | 1.93 | 1.87 | 1.99 | 216611 | | | | |
| t 1232 | 2.31 | 2.23 | 2.39 | 356441 | 2.32 | 385312 | N | 8 |
| t 1242/1016 | 3.79 | 3.73 | 3.85 | 613868 | | | | |
| t 1248 | 3.46 | 3.40 | 3.52 | 649147 | | | | |
| t 1254 | 4.77 | 4.71 | 4.83 | 491487 | 4.80 | 545980 | N | 11 |
| t 1260 | 6.80 | 6.71 | 6.89 | 792356 | | | | |
| 3C | 7.20 | 7.14 | 7.26 | 2925683 | 7.23 | 2361880 | N | 24 |
| :MX | | | | | | | | |

ier QNT Y/N: enter Y if quantitation was performed, N if not performed. must be less than or equal to 20.0% for quantitation, and less than equal to 20.0% for confirmation.

:e: Determining that no compounds were found above the CRDL is a form of ıntitation, and therefore at least one column must meet the 20.0% criteria.

: multicomponent analytes, the single largest peak that is characteristic the component should be used to establish retention time and %D. entification of such analytes is based primarily on pattern recognition.

11A

PCB CALIBRATION STANDARD CONCENTRATIONS

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 3975

Instrument ID: GCA GC Column ID: DB-5MS

Calibration Date(s): 09-21-94 to 09-21-94

| COMPOUD | CONCENTRATION (ng/ml) LEVEL #1 | CONCENTRATION (ng/ml) LEVEL #2 | CONCENTRATION (ng/ml) LEVEL #3 | CONCENTRATION (ng/ml) LEVEL #4 | CONCENTRATION (ng/ml) LEVEL #5 |
|---|---|---|---|---|---|
| AR 1221 | 50 | 100 | 250 | 500 | 1000 |
| AR 1232 | 50 | 100 | 250 | 500 | 1000 |
| AR 1242/1016 | 50 | 100 | 250 | 500 | 1000 |
| AR 1248 | 50 | 100 | 250 | 500 | 1000 |
| AR 1254 | 50 | 100 | 250 | 500 | 1000 |
| AR 1260 | 50 | 100 | 250 | 500 | 1000 |
| TCMX | 1 | 2 | 5 | 10 | 20 |
| DBC | 10 | 20 | 50 | 100 | 200 |

| COMPOUD | CONCENTRATION (ng/ml) LEVEL #6 | CONCENTRATION (ng/ml) LEVEL #7 | CONCENTRATION (ng/ml) LEVEL #8 | CONCENTRATION (ng/ml) LEVEL #9 | CONCENTRATION (ng/ml) LEVEL #10 |
|---|---|---|---|---|---|
| AR 1221 | 1500 | | | | |
| AR 1232 | 1500 | | | | |
| AR 1242/1016 | 1500 | | | | |
| AR 1248 | 1500 | | | | |
| AR 1254 | 1500 | | | | |
| AR 1260 | 1500 | | | | |
| TCMX | 30 | | | | |
| DBC | 300 | | | | |

FORM XI PEST-2

11A

PCB CALIBRATION STANDARD CONCENTRATIONS

b Name: ITAS-St. Louis Contract: 500.01

b Code: ITSL Case No.: SAS No.: SDG No.: 3975

strument ID: GCA GC Column ID: DB-608

libration Date(s): 09-21-94 to 09-21-94

| COMPOUD | CONCENTRATION (ng/ml) LEVEL #1 | CONCENTRATION (ng/ml) LEVEL #2 | CONCENTRATION (ng/ml) LEVEL #3 | CONCENTRATION (ng/ml) LEVEL #4 | CONCENTRATION (ng/ml) LEVEL #5 |
|---|---|---|---|---|---|
| AR 1221 | 50 | 100 | 250 | 500 | 1000 |
| AR 1232 | 50 | 100 | 250 | 500 | 1000 |
| AR 1242/1016 | 50 | 100 | 250 | 500 | 1000 |
| AR 1248 | 50 | 100 | 250 | 500 | 1000 |
| AR 1254 | 50 | 100 | 250 | 500 | 1000 |
| AR 1260 | 50 | 100 | 250 | 500 | 1000 |
| TCMX | 1 | 2 | 5 | 10 | 20 |
| DBC | 10 | 20 | 50 | 100 | 200 |

| COMPOUD | CONCENTRATION (ng/ml) LEVEL #6 | CONCENTRATION (ng/ml) LEVEL #7 | CONCENTRATION (ng/ml) LEVEL #8 | CONCENTRATION (ng/ml) LEVEL #9 | CONCENTRATION (ng/ml) LEVEL #10 |
|---|---|---|---|---|---|
| AR 1221 | 1500 | | | | |
| AR 1232 | 1500 | | | | |
| AR 1242/1016 | 1500 | | | | |
| AR 1248 | 1500 | | | | |
| AR 1254 | 1500 | | | | |
| AR 1260 | 1500 | | | | |
| TCMX | 30 | | | | |
| DBC | 300 | | | | |

FORM XI PEST-2

1D

PCB ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLK01

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 3975

Matrix: (soil/water) WATER Lab Sample ID: BLK 46568

Sample wt/vol: 1000 (g/ml) ML Lab File ID: _____

Level: (low/med) LOW Date Sampled : _____

% Moisture: not dec. _____ dec. _____ Date Extracted: 09-23-94

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10-03-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

| CAS NO. | Compound | | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | 1.0 | U |
| 11141-16-5 | Aroclor-1232 | 1.0 | U |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | 1.0 | U |
| 12672-29-6 | Aroclor-1248 | 1.0 | U |
| 11097-69-1 | Aroclor-1254 | 1.0 | U |
| 11096-82-5 | Aroclor-1260 | 1.0 | U |

FORM I PEST

1D
PCB ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
PSPK01

Name: ITAS-St. Louis Contract: 500.01

Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 3975

rix: (soil/water) WATER Lab Sample ID: SPK 46568

ple wt/vol: 1000 (g/ml) ML Lab File ID: _____

el: (low/med) LOW Date Sampled : _____

loisture: not dec. _____ dec. _____ Date Extracted: 09-23-94

raction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10-03-94

Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

| AS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 1104-28-2 | Aroclor-1221 | 1.0 | U |
| 1141-16-5 | Aroclor-1232 | 1.0 | U |
| 3469-21-9/12674-11-2 | Aroclor-1242/1016 | 1.0 | U |
| 2672-29-6 | Aroclor-1248 | 1.0 | U |
| 1097-69-1 | Aroclor-1254 | 4.4 | |
| 1096-82-5 | Aroclor-1260 | 1.0 | U |

FORM I PEST

USER SAMPLE ID : 400009
SAMPLE ID : 200094014
SAMPLE PT : 044801-003
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000003975
LAB : FEMP RADIOCHEMICAL
ASL : B

000428

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4013/ALPHA/BETA SCREEN, PCI/G | | | | | | | | | | |
| | ALPHA | 450 | | 450 | | pCi/g | 19-SEP-94 | 19-SEP-94 | | COMPLETE / DONE | |
| | BETA | 520 | | 520 | | pCi/g | 19-SEP-94 | 19-SEP-94 | | COMPLETE / DONE | |

2 RECORDS PRINTED

END OF REPORT

**********

Your Selection Criteria Was: Release Number: 1000003975 Sample ID Range: Any Display Test Results

TIME 16:21:20

USER SAMPLE ID : 400009
SAMPLE ID : 200094012
SAMPLE PT : 044801-003
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000003975
LAB : FEMP RADIOCHEMICAL
ASL : B

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | C94-198/TOTAL TH - COLOR ANALYSIS (PPM) | | | | | | | | | | |
| | THORIUM | 45 | U | | | ppm | 19-OCT-94 | 18-OCT-94 | | COMPLETE / ONLINE | |

1 RECORD PRINTED

000479

**********

Your Selection Criteria Was: Release Number: 1000003975 Sample ID Range: thru Display Text? Y
Laboratory: Exclude Approval Lines? Y

000721

USER SAMPLE ID : 400008
SAMPLE ID : 200094006
SAMPLE PT : 044801-003
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000003975
LAB : ITAS-STL
ASL : B

000480

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4013/ALPHA/BETA SCREEN, PCI/G | | | | | | | | | | |
| | ALPHA | 390 | | 390 | | pCi/g | 19-SEP-94 | 19-SEP-94 | | COMPLETE / DONE | |
| | BETA | 500 | | 500 | | pCi/g | 19-SEP-94 | 19-SEP-94 | | COMPLETE / DONE | |

2 RECORDS PRINTED

**********

USER SAMPLE ID : 400008
SAMPLE ID : 200094004
SAMPLE PT : 044801-003
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000003975
LAB : ITAS-STL
ASL : B

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | C94-198/TOTAL TH - COLOR ANALYSIS (PPM) | | | | | | | | | | |
| | THORIUM | 45 | U | | | ppm | 19-OCT-94 | 18-OCT-94 | | COMPLETE / ONLINE | |

1 RECORD PRINTED

1890000481

00721

**********

Your Selection Criteria Was: Release Number: 1000003975 Sample ID Range: thru Display Text? Y
Laboratory: Exclude Approval Lines? Y

USER SAMPLE ID : 400008
SAMPLE ID : 200094003
SAMPLE PT : 044801-003
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000003975
LAB : FEMP INORGANICS-EPM
ASL : B

0004482

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3002/U - BRPADAP ANALYSIS (UG/G) | | | | | | | | | | |
| | URANIUM | 700 | | | | ug/g | 07-OCT-94 | 06-OCT-94 | | COMPLETE / ONLINE | |

1 RECORD PRINTED

**********

Field Blanks



USER SAMPLE ID : 400006
SAMPLE ID : 200093970
SAMPLE PT : 044801-002
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000003975
LAB : ITAS-STL
ASL : B

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4013/ALPHA/BETA SCREEN, PCI/ML | | | | | | | | | | |
| | ALPHA | 0.16 | U | | | pCi/m | 20-SEP-94 | 19-SEP-94 | | COMPLETE / ONLINE | |
| | BETA | 0.32 | U | | | pCi/m | 20-SEP-94 | 19-SEP-94 | | COMPLETE / ONLINE | |

2 RECORDS PRINTED

000483

**********

Your Selection Criteria Was: Release Number: 1000003975 Sample ID Range: thru Display Text? Y
Laboratory: Exclude Approval Lines? Y

00021

USER SAMPLE ID : 400006
SAMPLE ID : 200093968
SAMPLE PT : 044801-002
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000003975
LAB : ITAS-STL
ASL : B

000484

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | C94-198/TOTAL TH - COLOR ANALYSIS (MG/L) | | | | | | | | | | |
| | THORIUM | 0.1 | U | 0.1 | U | mg/L | 28-SEP-94 | 27-SEP-94 | | COMPLETE / DONE | |

1 RECORD PRINTED

**********

Field Blank

DATE 05-DEC-94
TIME 16:21:20

FORM 1



USER SAMPLE ID : 400006
SAMPLE ID : 200093967
SAMPLE PT : 044801-002
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000003975
LAB : FEMP INORGANICS-EPM
ASL : B

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3002/U - BRPADAP ANALYSIS (MG/L) | | | | | | | | | | |
| | URANIUM | 0.1 | U | 0.1 | U | mg/L | 22-SEP-94 | 20-SEP-94 | | COMPLETE / DONE | |

1 RECORD PRINTED

000485

001241

**********

Your Selection Criteria Was: Release Number: 1000003975 Sample ID Range: thru Display Text? Y
Laboratory: Exclude Approval Lines? Y

1 rip Blank



USER SAMPLE ID : 400007
SAMPLE ID : 200093998
SAMPLE PT : 044801-003
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000003975
LAB : ITAS-STL
ASL : B

0004486

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4013/ALPHA/BETA SCREEN, PCI/ML | | | | | | | | | | |
| | ALPHA | 0.18 | U | 0.18 | U | pCi/m | 19-SEP-94 | 19-SEP-94 | | COMPLETE / DONE | |
| | BETA | 0.34 | U | 0.34 | U | pCi/m | 19-SEP-94 | 19-SEP-94 | | COMPLETE / DONE | |

2 RECORDS PRINTED

**********

**Item 2 - Laboratory Analytical Results - Decontamination Solution**

Copied for D. Entry 11/23/94 GLM

KCC'd from CM 11/18/94 GLM

Quanterra Environmental Services

007211

Quanterra Incorporated
13715 Rider Trail North
Earth City, Missouri 63045

314 298-8566 Telephone
314 298-8757 Fax

# CERTIFICATE OF ANALYSIS

FERMCO
P.O. Box 398074
Cincinnati, OH 45239-8704

ATTENTION: Mainerd Sorensen

November 16, 1994



PROJECT NUMBER : 500.01
RELEASE NUMBER : 4096
DATE RECEIVED : October 4, 1994
NUMBER OF SAMPLES: Sixteen (16)
SAMPLE MATRIX : Matrix Code A (Water)

## I. Introduction

On October 4, 1994, sixteen (16) samples were received at Quanterra Environmental Services at St. Louis from Fernald Environmental Restoration Management Company. The list of analytical tests performed, as well as receipt and analysis, can be found in the attached report. The samples were labeled as follows:

| FERMCO SAMPLE ID | QUANTERRA SAMPLE ID | ANALYSES REQUESTED |
|---|---|---|
| 200093911 | 6342-001 | Table 3 (Total Metals) |
| 200093911 | 6342-001DUP | Table 3 (Total Metals) |
| 200093911 | 6342-001MS | Table 3 (Total Metals) |
| 200093919 | 6342-002 | Table 3 (Total Metals) |
| 200094015 | 6342-003 | Table 8 (Total Metals) |
| 200093912 | 6342-004 | Table 12 (Total Herbicides) |
| 200093912 | 6342-004MS | Table 12 (Total Herbicides) |
| 200093912 | 6342-004MSD | Table 12 (Total Herbicides) |

| FERMCO SAMPLE ID | QUANTERRA SAMPLE ID | ANALYSES REQUESTED |
|---|---|---|
| 200093920 | 6342-005 | Table 12 (Total Herbicides) |
| 200094016 | 6342-006 | Table 12 (Total Herbicides) |
| 200093913 | 6342-007 | Table 8 (Total BNA's) |
| 200093913 | 6342-007MS | Table 8 (Total BNA's) |
| 200093913 | 6342-007MSD | Table 8 (Total BNA's) |
| 200093921 | 6342-008 | Table 8 (Total BNA's) |
| 200094017 | 6342-009 | Table 8 (Total BNA's) |
| 200093914 | 6342-010 | Table 5 (Total VOA's) |
| 200093914 | 6342-010MS | Table 5 (Total VOA's) |
| 200093914 | 6342-010MSD | Table 5 (Total VOA's) |
| 200093922 | 6342-011 | Table 5 (Total VOA's) |
| 200094018 | 6342-012 | Table 5 (Total VOA's) |
| 200094024 | 6342-013 | Table 5 (Total VOA's) |
| 200093917 | 6342-014 | Table 22 (PCB's) |
| 200093917 | 6342-014MS | Table 22 (PCB's) |
| 200093917 | 6342-014MSD | Table 22 (PCB's) |
| 200093925 | 6342-015 | Table 22 (PCB's) |
| 200094022 | 6342-016 | Table 22 (PCB's) |

II. Analytical Results/Methodology

The analytical results for this report are presented by analytical tests. Each set of data will include sample identification information, the analytical results, and the appropriate detection limits.

The analyses requested includes: Total Volatiles by EPA method 8240, PCB's by EPA method 8080, Total Metals by EPA method 6010/7470, Total Semivolatiles by EPA method 8270, Total Herbicides by EPA method 8150

VOLATILES

There are no comments or nonconformances associated with this analysis.

SEMIVOLATILES

Samples 200093913 and -93921 (6342-007 and -008) were difficult matrices, despite the fact that they were water samples. The extracts were highly colored, therefore they underwent GPC cleanup, which reduced the color but did not eliminate it. GC/MS analysis gave low internal standard responses for the later eluting internal standards due to an obvious matrix affect, which normally would have resulted in a 1:10 dilution being performed. However, past history has indicated that the higher detection limits have been undesirable by the client.

Sample 200093913 (6342-007) gave low recoveries for nitrobenzene-d5, 2-fluorobiphenyl and 2-fluorophenol surrogates. The MS of this sample gave similar results; however, the MSD gave acceptable recoveries of all the surrogates except 2-fluorophenol and terphenyl-d14, the latter of which was a high recovery. It was noted that the MSD extracting was markedly less colored than that of the sample and MS so that sample heterogeneity is suspected, but it is unclear as to why terphenyl-d14 recovery is high in the MSD but not in the sample or MS.

Sample 200093921 (6342-008) gave a high recovery of terphenyl-d14 surrogate due to a suppressed chrysene-d12 internal standard response. This sample was found to be difficult to filter when it was loaded on the GPC, which resulted in some of the extract being lost when the syringe leaked. As a result, the remaining portion of the extract was diluted 1:2 and reloaded on the GPC. This resulted in a doubling of the normal detection limits; however, it is noted that a target analyte is detected in this sample near the mid-point of the calibration range.

III. Quality Control

The QA/QC information can be found immediately following the analytical data. This QA/QC data are used to assess the laboratory's accuracy and precision during the analytical procedure.

Duplicate and matrix spike analyses were performed for Matrix A Total Metals for sample 200093911 (6342-001).

Matrix spike and matrix spike duplicate analyses were performed for Matrix A Total Herbicides for sample 200093912 (6342-004).

Matrix spike and matrix spike duplicate analyses were performed for Matrix A Total Semivolatiles for sample 200093913 (6342-007.

Matrix spike and matrix spike duplicate analyses were performed for Matrix A Volatiles for sample 200093914 (6271-010).

Matrix spike and matrix spike duplicate analyses were performed for Matrix A PCB's for sample 200093917 (6342-014).

IV. Comments/Nonconformances

Metals samples 200093911 and 200093919 were received with a pH of 10. Client notified - samples processed "as is".

METALS

The initial ICP analysis of silver, barium, and lead caused the QC to fail which was probably due to the high sodium in the samples. The samples were reanalyzed for these three elements at a 10X dilution and the data was reported from this run.

Due to the 10X dilution, the matrix spike recovery for silver was low. Because the dilution increased the reporting limit to 37.0 ug/L, both the sample and matrix spike results were less than the reporting limit. Though the spiking level was 50.0 ug/L the matrix spike recovery was a nondetect.

The MS/MSD of 200093913 (6342-007) gave poor recoveries of pyridine and hexachloroethane due to a matrix affect. The MS gave significantly lower recoveries of all the analytes than did the MSD (similar to the surrogate recoveries), most of which were out-of-control. Pyridine was not recovered at all from the MS and was recovered at only 6% in the MSD (pyridine was recovered at 67% in the LCS).

HERBICIDES

There are no comments or nonconformances associated with this analysis.

PCB'S

There are no comments or nonconformances associated with this analysis.

I certify that this Certificate of Analysis is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Reviewed and approved:

Robert E. White

Robert E. White
Project Manager

Quanterra
Environmental Services

DELIVERED TO: BS + KB
DATE: 10-04-94
TIME: 10:15
Bob Cavart

Work Order No.: 634

# Condition Upon Receipt Variance Report
## St. Louis Laboratory

Client: Ferrco
Date: 10-04-94 0900
Project No: 500.01
Initiated by: Bob Cavart
Analysis Requested: Refer to RFA/COC
RFA/COC Numbers: SPL-94-6257
Client Sample Numbers Affected: Entire Login

Condition/Variance (Check all that apply): Circle Number to Denote that Item was Evaluated. "NA" = "Not Applical

1 NA Not enough sample received for proper analysis.
Received approximately: _____

2 ☐ Sample received broken/leaking.

3 ☑ Sample received without proper preservative.
☐ Cooler temperature not within 4°C ± 2°C
Record temperature: 5°C + 6°C see coc's
☑ pH samples 200093916 + 200093919 for metals both had pH's 10
☐ other: _____

4 ☐ Sample received in improper container.

5 ☐ Sample received without proper paperwork. Explain:
_____

6 ☐ Paperwork received without sample.

7 ☐ No sample ID on sample container.

8 ☐ Custody tape disturbed/broken/missing.

9. NA Sample splits performed by lab.

10 NA Volatile sample received with approximately _____ mm headspace.

11 ☐ Sample ID on container does not match samp on paperwork. Explain:
_____

12 ☐ All coolers on airbill not received with shipm

13 ☐ Other (explain below):
Shipping containers not rad surveyed.

Notes:

Corrective Action:

☐ Client's Name: _____ Informed verbally on: _____ By: _____
☐ Client's Name: _____ Informed in writing on: _____ By: _____

☐ Sample(s) processed "as is". Comments: _____
☐ Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor Review: (or designate) _____ Date: _____
Project Management Review: F. R. Ciampelli Date: 11-5-94

000493

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

# QUANTERRA ENVIRONMENTAL SERVICES

FAXED

## ST. LOUIS, MO

FAX TRANSMISSION

| | |
|---|---|
| TO: Mainerd Sorensen | |
| COMPANY: FERMCO | |
| FAX NUMBER: 513-738-6667 | |
| SENDER: Kathy Giacopelli | |
| DATE: 10/04/94 | OPERATOR: KG |
| TIME: 10:45 | NUMBER OF PAGES: (INCLUDES COVER) 4 |

St. Louis Laboratory
Fax Number: (314) 298-8757
If You Experience Trouble, Call (314) 298-8566

Quanterra.....Subcontract No. 434285..... Project 500.01

Confirmation of Sample Receipt and Condition Upon Receipt for:

Release 4096

Samples 200093911 & 200093919 for metals were received with a pH of 10 - Process "as is" ?

ITAS - St. Louis

# CONVERSATION RECORD

| TIME | DATE | PROJECT NO. |
|---|---|---|
| 3:00 | 10-4-94 | 500.0 |

TYPE ☐ VISIT ☐ CONFERENCE ☐ TELEPHONE ☐ INCOMING ☐ OUTGOING

ROUTING NAME/SYMBOL

Location of Visit/Conference:

| NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU | ORGANIZATION (Office, dept., bureau, etc.) | TELEPHONE NO. |
|---|---|---|
| M. Sorenson | FERMCO | 513 738 9159 |

SUBJECT

SUMMARY

Sample control - Release 4096
Is Sample 20009 4024 a Trip Blank
yes it is a TRIP Blank
Informed Sample control.

ACTION REQUIRED

| NAME OF PERSON DOCUMENTING CONVERSATION | SIGNATURE | DATE |
|---|---|---|
| [illegible] | | 10-4-94 |

ACTION TAKEN

| SIGNATURE | TITLE | DATE |
|---|---|---|
| | | |

ITAS - St. Louis

LI 6342
007211

# CONVERSATION RECORD

| TIME | DATE | PROJECT NO. |
|---|---|---|
| | 10-07-94 | 560.07 |

YPE ☐ VISIT ☐ CONFERENCE ☒ TELEPHONE ☒ INCOMING ☐ OUTGOING

ocation of Visit/Conference:

| ROUTING NAME/SYMBOL | INT |
|---|---|
| | |
| | |
| | |
| | |

| NAME OF PERSON(S) CONTACTED OR IN ONTACT WITH YOU | ORGANIZATION (Office, dept., bureau, etc.) | TELEPHONE NO. |
|---|---|---|
| Mainerd Sorensen | FERINCO | |

UBJECT

FAX concerning insufficient samples releases

UMMARY

Even though hold times have expired, extract from sample container of the same location.

Do not use the extract from the 40 mL vials extracted.

CTION REQUIRED

| NAME OF PERSON DOCUMENTING CONVERSATION | SIGNATURE | DATE |
|---|---|---|
| | Robert E. White | 10-07-94 |

CTION TAKEN

| SIGNATURE | TITLE | DATE |
|---|---|---|
| | | |

Quanterra Environmental Services

# ST. LOUIS, MO

FAX TRANSMISSION

| | | | |
|---|---|---|---|
| TO: | Mainerd Sorensen | | |
| COMPANY: | FERMCO | | |
| FAX NUMBER: | 513-738-6667 | | |
| SENDER: | Bob White | | |
| DATE: 10/06/94 | | OPERATOR: REW | |
| TIME: 2:20 | FAXED | NUMBER OF PAGES: 1 (INCLUDES COVER) | |

St. Louis Laboratory

Fax Number: (314) 298-8757

If You Experience Trouble, Call (314) 298-8566

Subcontract Number 434285.....FERMCO Project 500.01

Analysis request of Table 22 (PCB8080) for the following samples:

200093933 (6271-002) Release 4052

200093917 (6342-014) Release 4096
200093925 (6342-015) Release 4096
200094022 (6342-016) Release 4096

were submitted with 1 X 40 mL vial for analysis. The matrix is specified as "A", and has insufficient volume to perform matrix QC. One liter is required for this analysis. The detection limits will increase X 250. Should we proceed with these analyses?

Release 4002, Sample 200096770 (6199-005), matrix B, was submitted for Tables 10 and 12 (Pest & Herb). The sample was extracted for Table 12 (Herb) which requires 50 g, and only about 9 g. of sample remains. Not enough sample remains for the Table 10 (Pest) extraction.

Please advise the lab. on how to proceed with the analyses for the samples listed above.

Fernald Environmental Restoration Management Corporation

RSO - ANALYTICAL LABORATORY SERVICES

Page 1 of 2

# OFF-SITE LABORATORY CUSTODY TRANSFER AND ANALYSIS REQUEST RECORD (OCTR)

REFERENCE DOCUMENT NO: SAR/CR: SPL-94-605

PURCHASE ORDER NO.: 434285

RELEASE NO.: 100000 4096

SAMPLE SHIPMENT DATE: 10-3-94

SAMPLE SHIPPER: S. CAPANO

OFF-SITE LAB CONTACT: BOB WHITE

FERMCO CONTACT/PHONE: MAINERD SORENSEN (513) 738-9159

REQUIRED REPORT DATE: PER CONTRACT (NORMAL)

SAMPLE TEAM: FIELD OPERATION

REPORT TO: FERMCO, P.O. BOX 398704, CINCINNATI, OH 45239-8704

RECEIVING LAB NAME: QUANTERRA ST. LOUIS

RECEIVING LAB ADDRESS: 630 13715 RIDGE TRAIL NORTH EARTH CITY

| | SAMPLE NUMBER | SAMPLE DESCRIPTION/TYPE/CODE | DATE/TIME COLLECTED | CONTAINER TYPE | SAMPLE VOLUME | PRESERVATION | ANALYSIS REQUESTED | CONDITION UPON RECEIPT* |
|---|---|---|---|---|---|---|---|---|
| S | 1 20009 3911 400000 | 1 A | 9-29-94 1225 | 1L POLY | 1 X 1L | $HNO_3$ pH<2 | TABLE 3 TCLP metals 6 100 | pH 10 |
| | 2 20009 3912 400000 | 4 A | 9-29-94 1225 | 1 GAL. AMB GL | 1 X 1 GAL | 4°C | TABLE 12 Herb 6 100 | |
| | 3 20009 3913 400000 | 7 A | 9-29-94 1225 | 1 GAL AMB. GL | 1 X 1 GAL | 4°C | TABLE 8* Ave 6 100 | |
| | 4 20009 3914 400000 | 10 A | 9-29-94 1225 | 40ml GLS. | 2 X 40ml | 4°C | TABLE 5** TCLP VOA 6 100 | |
| | 5 20009 3917 400000 | 13 A | 9-29-94 1225 | 40ml AMB GLS | 1 X 40ml | 4°C | TABLE 22 PCB 6 100 | |
| S | 6 20009 3919 400001 | 2 A | 9-29-94 1250 | 1L. POLY | 1 X 1L. | $HNO_3$ pH<2 | TABLE 3 TCLP metals 6 100 | 10 |
| | 7 20009 3920 400001 | 5 A | 9-29-94 1250 | 1 GAL AMB GL | 1 X 1 GAL. | 4°C | TABLE 12 Herb 6 100 | |
| | 8 20009 3921 400001 | 8 A | 9-29-94 1250 | 1 GAL AMB GL | 1 X 1 GAL | 4°C | TABLE 8* AMB 6 100 | |
| | 9 20009 3922 400001 | 11 A | 9-29-94 1250 | 40ml GLS | 2 X 40ml | 4°C | TABLE 5** TCLP VOA 6 100 | |
| | 10 20009 3925 400001 | 14 A | 9-29-94 1250 | 40ml AMB GLS. | 1 X 40ml | 4°C | TABLE 22 PCB 6 100 | |
| S | 11 20009 4015 400010 | 3 A | 9-29-94 1230 | 1L. POLY | 1 X 1L. | $HNO_3$ pH<2 | TABLE 3 TCLP metal 6 100 | 1 |

SPECIAL INSTRUCTIONS: * = + SW 846 ANALYSIS; CLP REPORTING FORMS (TETRACHLOROETHYLENE + TRICHLOROETHYLENE) TABLE 8

** = + SW 846 ANALYSIS; CLP REPORTING FORMS (CHLOROFORM, 1-2 DICHLOROETHANE, 1,1-DICHLOROETHYLENE + VINYL CHLORIDE) TABLE 5

SAMPLE PLAN NUMBER: N/A

PROJECT NAME: DETREX STILL

CHARGE NUMBER: 3BSU3

| CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: |
|---|---|---|---|---|---|---|---|---|---|
| | | | COOLER | SEALED W/ C-O-C TAPE | | | | | |

| RELINQUISHED | | | RECEIVED | | |
|---|---|---|---|---|---|
| RELINQUISHED BY | DATE | TIME | DATE | TIME | RECEIVED BY |
| 1. Steve Capano | 10-3-94 | 1300 | 1. 10-04-94 | 0700 | Bob Cauer |
| 2. | | | 2. | | |
| 3. | | | 3. | | |

| NO. | | DISTRIBUTION OF COPIES |
|---|---|---|
| 1 | WHITE | REMAIN WITH SAMPLES |
| 2 | YELLOW | OFF-SITE LAB |
| 3 | PINK | FERMCO DATA REVIEW AND REPORTING |
| 4 | BLUE | ORIGINATOR |

Note: PH for metals on Samples 20009 3911 + 20009 3917 was 10

*IF SEALS ARE BROKEN, CONTACT THE FERMCO CONTACT LISTED ABOVE IMMEDIATELY.

FS-F-3366 (REV 12/31/92)

000498

000498

000499

Page 2 of 2

Fernald Environmental Restoration Management Corporation

RSO - ANALYTICAL LABORATORY SERVICES

# OFF-SITE LABORATORY CUSTODY TRANSFER AND ANALYSIS REQUEST RECORD (OCTR)

REFERENCE DOCUMENT NO: SAR/CR: SAL-94-625

| | | |
|---|---|---|
| PURCHASE ORDER NO.: 434285 | OFF-SITE LAB CONTACT: BOB WHITE | REPORT TO: FERMCO P.O. BOX 398704 CINCINNATI, OH 45239-8704 |
| RELEASE NO.: 100000 4096 | FERMCO CONTACT/PHONE: MAINERD SORENSEN (513) 738-9159 | |
| SAMPLE SHIPMENT DATE: 10-3-94 | REQUIRED REPORT DATE: PER CONTRACT | RECEIVING LAB NAME: QUANTERRA, ST. LOUIS |
| SAMPLE SHIPPER: S. CAPANO | SAMPLE TEAM: FIELD OPERATION | RECEIVING LAB ADDRESS: |

| | SAMPLE NUMBER | SAMPLE DESCRIPTION/TYPE/CODE | DATE/TIME COLLECTED | CONTAINER TYPE | SAMPLE VOLUME | PRESERVATION | ANALYSIS REQUESTED | CONDITION UPON RECEIPT* |
|---|---|---|---|---|---|---|---|---|
| 1 | 20009 4016 400010 | 6 A | 9-3-94 1130 | 16oz GLS | 1 X 16oz | 4°C | TABLE 12 Hub 5 | 100 |
| 2 | 20009 4017 400010 | 9 A | 9-3-94 1230 | 16oz GLS | 1 X 16oz | 4°C | TABLE 8 ** Hub 5 | 100 |
| 3 | 20009 4018 400010 | 12 A | 9-3-94 1130 | 40ml GLS | 2 X 40ml | 4°C | TABLE 5 ** ** TCLP Hub 6 | 100 |
| 4 | 20009 4019 400010 | 13 A | 9-3-94 1130 | 40ml GLS | 1 X 40ml | 4°C | TABLE 22 Hub 6 | 100 |
| 5 | 20009 4014 400011 | 13 A | 9-3-94 0900 | 40ml GLS | 3 X 40ml | HCL pH<2 | TABLE 5 ** TCLP Hub 6 | 100 |
| 6 | | | | | | | | |
| 7 | | | | | | | | |
| 8 | | | | | | | | |
| 9 | | | | | | | | |
| 10 | | | | | | | | |
| 11 | | | | | | | | |

SPECIAL INSTRUCTIONS: * = + SW 846 ANALYSIS: CLP REPORTING FORMS (TETRACHLOROETHYLENE + TRICHLOROETHYLENE) (TABLE 8)
** = + SW-846 ANALYSIS; CLP REPORTING FORMS (CHLOROFORM, 1-2 DICHLOROETHANE, 1-1-DICHLOROETHYLENE + VINYL CHLORIDE)

| SAMPLE PLAN NUMBER: | PROJECT NAME: | CHARGE NUMBER: |
|---|---|---|
| N/A | DETREX STILL | 3 BSU 3 |

| CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | COOLER | SEALED | W/ | C-O-C | TAPE | | | |

| RELINQUISHED | | | RECEIVED | | |
|---|---|---|---|---|---|
| RELINQUISHED BY | DATE | TIME | DATE | TIME | RECEIVED BY |
| 1. Steve Capano | 10-3-94 | 1300 | 1. 10-04-94 | 0900 | Bill Cavel |
| 2. | | | 2. | | |
| 3. | | | 3. | | |

| NO. | DISTRIBUTION OF COPIES |
|---|---|
| 1 | WHITE REMAIN WITH SAMPLES |

16001098

Release 4096

Quanterra October 05, 1994 10:10 am
Account: 10872 Project: 500.01 Fernald Env. Restoration Mgt. Corp. QAS No. 500 Rev. 2
Master Sample Login: 6342

Project Manager: R. White

Draft: / Final: / Entered and Reviewed by: [signature] PM Review: [signature]

Sample Header Template:

| Sample No. / # Container Type / Comments / Date: | Client ID | C-Matrix / Analysis | Date: Collected | Received | Due | Shipper | Rad Category | Rad Sample No. (Container Numbers:% Filled) | Class | Preservative | Anal. Due Date | Hold Date | Site |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6342-001 CLP FORMS | 200093911 | Water | 29-SEP-94 12:25 | 04-OCT-94 09:00 | 04-NOV-94 | FED-EX | 3* | R2956-003 | | | | | |
| 1 PN - Plastic-1L | | HG/7470/Q4 | | | | | | (104355:100) | S | HNO3 | 28-OCT-94 | 27-OCT-94 | S5G |
| 1 | | ICAP/6010/Q4 | | | | | | (104355:100) | S | HNO3 | 28-OCT-94 | 28-MAR-95 | S5G |
| 1 | | RAD/SCREEN/Q4 | | | | | | (104355:100) | S | HNO3 | 28-OCT-94 | 02-APR-95 | S5G |
| 6342-001DUP CLP FORMS | 200093911 | Water | 29-SEP-94 12:25 | 04-OCT-94 09:00 | 04-NOV-94 | FED-EX | 3* | R2956-003 | | | | | |
| 1 PN - Plastic-1L | | HG/7470/Q4 | | | | | | (104355:100) | S | HNO3 | 28-OCT-94 | 27-OCT-94 | S5G |
| 1 | | ICAP/6010/Q4 | | | | | | (104355:100) | S | HNO3 | 28-OCT-94 | 28-MAR-95 | S5G |
| 6342-001MS CLP FORMS | 200093911 | Water | 29-SEP-94 12:25 | 04-OCT-94 09:00 | 04-NOV-94 | FED-EX | 3* | R2956-003 | | | | | |
| 1 PN - Plastic-1L | | HG/7470/Q4 | | | | | | (104355:100) | S | HNO3 | 28-OCT-94 | 27-OCT-94 | S5G |
| 1 | | ICAP/6010/Q4 | | | | | | (104355:100) | S | HNO3 | 28-OCT-94 | 28-MAR-95 | S5G |
| 6342-002 CLP FORMS | 200093919 | Water | 29-SEP-94 12:50 | 04-OCT-94 09:00 | 04-NOV-94 | FED-EX | 3* | R2956-002 | | | | | |
| 1 PN - Plastic-1L | | HG/7470/Q4 | | | | | | (104356:100) | S | HNO3 | 28-OCT-94 | 27-OCT-94 | S5G |
| 1 | | ICAP/6010/Q4 | | | | | | (104356:100) | S | HNO3 | 28-OCT-94 | 28-MAR-95 | S5G |
| 1 | | RAD/SCREEN/Q4 | | | | | | (104356:100) | S | HNO3 | 28-OCT-94 | 02-APR-95 | S5G |
| 6342-003 CLP FORMS | 200094015 | Water | 29-SEP-94 12:30 | 04-OCT-94 09:00 | 04-NOV-94 | FED-EX | 3* | R2956-001 | | | | | |
| 1 PN - Plastic-1L | | HG/7470/Q4 | | | | | | (104357:100) | S | HNO3 | 28-OCT-94 | 27-OCT-94 | S5G |
| 1 | | ICAP/6010/Q4 | | | | | | (104357:100) | S | HNO3 | 28-OCT-94 | 28-MAR-95 | S5G |
| 1 | | RAD/SCREEN/Q4 | | | | | | (104357:100) | S | HNO3 | 28-OCT-94 | 02-APR-95 | S5G |
| 6342-004 CLP FORMS | 200093912 | Water | 29-SEP-94 12:25 | 04-OCT-94 09:00 | 04-NOV-94 | FED-EX | 3* | Sample not Screened | | | | | |
| 1 AN - Amber Glass-4L | | HERB/8150/Q4 | | | | | | (104358:100) | S | COLD | 28-OCT-94 | 06-OCT-94 | S5G |
| 6342-004MS CLP FORMS | 200093912 | Water | 29-SEP-94 12:25 | 04-OCT-94 09:00 | 04-NOV-94 | FED-EX | 3* | Sample not Screened | | | | | |
| 1 AN - Amber Glass-4L | | HERB/8150/Q4 | | | | | | (104358:100) | S | COLD | 28-OCT-94 | 06-OCT-94 | S5G |

3*=Sample has not been rad screened.



000500

007211

Quanterra October 05, 1994 10:10 am
Account: 10872 Project: 500.01 Fernald Env. Restoration Mgt. Corp. QAS No. 500 Rev. 2
Master Sample Login: 6342

Project Manager: R. White

Draft: Final: Entered and Reviewed by:_____ PM Review:_____

Sample Header Template: _____

| Sample No. / Comments / # Container Type / Date: | Client ID | C-Matrix / Analysis | Date; Collected / Class | Received / Preservative | Due / Anal. Due Date | Shipper / Hold Date | Site | Rad Category | Rad Sample No. (Container Numbers:% Filled) |
|---|---|---|---|---|---|---|---|---|---|
| 6342-004MSD CLP FORMS | 200093912 | Water | 29-SEP-94 12:25 | 04-OCT-94 09:00 | 04-NOV-94 | FED-EX | | 3* | Sample not Screened |
| 1 AN - Amber Glass-4L | | NERB/8150/04 | S | COLD | 28-OCT-94 | 06-OCT-94 | S5G | | (104358:100) |
| 6342-005 CLP FORMS | 200093920 | Water | 29-SEP-94 12:50 | 04-OCT-94 09:00 | 04-NOV-94 | FED-EX | | 3* | Sample not Screened |
| 1 AN - Amber Glass-4L | | NERB/8150/04 | S | COLD | 28-OCT-94 | 06-OCT-94 | S5G | | (104359:100) |
| 6342-006 CLP FORMS | 200094016 | Water | 29-SEP-94 12:30 | 04-OCT-94 09:00 | 04-NOV-94 | FED-EX | | 3* | Sample not Screened |
| 1 AN - Amber Glass-4L | | NERB/8150/04 | S | COLD | 28-OCT-94 | 06-OCT-94 | S5G | | (104360:100) |
| 6342-007 CLP FORMS | 200093913 | Water | 29-SEP-94 12:25 | 04-OCT-94 09:00 | 04-NOV-94 | FED-EX | | 3* | Sample not Screened |
| 1 AN - Amber Glass-4L | | BNA/8270/04 | S | COLD | 28-OCT-94 | 06-OCT-94 | S5G | | (104361:100) |
| 6342-007MS CLP FORMS | 200093913 | Water | 29-SEP-94 12:25 | 04-OCT-94 09:00 | 04-NOV-94 | FED-EX | | 3* | Sample not Screened |
| 1 AN - Amber Glass-4L | | BNA/8270/04 | S | COLD | 28-OCT-94 | 06-OCT-94 | S5G | | (104361:100) |
| 6342-007MSD CLP FORMS | 200093913 | Water | 29-SEP-94 12:25 | 04-OCT-94 09:00 | 04-NOV-94 | FED-EX | | 3* | Sample not Screened |
| 1 AN - Amber Glass-4L | | BNA/8270/04 | S | COLD | 28-OCT-94 | 06-OCT-94 | S5G | | (104361:100) |
| 6342-008 CLP FORMS | 200093921 | Water | 29-SEP-94 12:50 | 04-OCT-94 09:00 | 04-NOV-94 | FED-EX | | 3* | Sample not Screened |
| 1 AN - Amber Glass-4L | | BNA/8270/04 | S | COLD | 28-OCT-94 | 06-OCT-94 | S5G | | (104364:100) |
| 6342-009 CLP FORMS | 200094017 | Water | 29-SEP-94 12:30 | 04-OCT-94 09:00 | 04-NOV-94 | FED-EX | | 3* | Sample not Screened |
| 1 AN - Amber Glass-4L | | BNA/8270/04 | S | COLD | 28-OCT-94 | 06-OCT-94 | S5G | | (104366:100) |
| 6342-010 CLP FORMS-COMPOUNDS ADDED-SEE MEMO | 200093914 | Water | 29-SEP-94 12:25 | 04-OCT-94 09:00 | 04-NOV-94 | FED-EX | | 3* | Sample not Screened |

11-11-94

Account: 10872 Project: 500.01 Fernald Env. Restoration Mgt. Corp. QAS No. 500 Rev. 2
Master Sample Login: 6342

Project Manager: R. White

Draft: Final: Entered and Reviewed by:_____ PM Review:_____

Sample Header Template: _____

| Sample No. / Comments | Client ID | C-Matrix | Date: Collected | Received | Due | Shipper | Rad Category | Rad Sample No. |
|---|---|---|---|---|---|---|---|---|
| # Container Type / Date: | | Analysis | Class | Preservative | Anal. Due Date | Hold Date | Site | (Container Numbers:% Filled) |
| 2 VI - Vial-40ml | | VOA/8240/04 | S | COLD | 28-OCT-94 | 13-OCT-94 | 109B | (104370:100 104374:99) |
| 6342-010MS<br>CLP FORMS | 200093914 | Water | 29-SEP-94 12:25 | 04-OCT-94 09:00 | 04-NOV-94 | FED-EX | 3* | Sample not Screened |
| 2 VI - Vial-40ml | | VOA/8240/04 | S | COLD | 28-OCT-94 | 13-OCT-94 | 109B | (104370:100 104374:99) |
| 6342-010MSD<br>CLP FORMS | 200093914 | Water | 29-SEP-94 12:25 | 04-OCT-94 09:00 | 04-NOV-94 | FED-EX | 3* | Sample not Screened |
| 2 VI - Vial-40ml | | VOA/8240/04 | S | COLD | 28-OCT-94 | 13-OCT-94 | 109B | (104370:100 104374:99) |
| 6342-011<br>CLP FORMS-COMPOUNDS ADDED-SEE MEMO | 200093922 | Water | 29-SEP-94 12:50 | 04-OCT-94 09:00 | 04-NOV-94 | FED-EX | 3* | Sample not Screened |
| 2 VI - Vial-40ml | | VOA/8240/04 | S | COLD | 28-OCT-94 | 13-OCT-94 | 109B | (104375:100 104376:99) |
| 6342-012<br>CLP FORMS-COMPOUNDS ADDED-SEE MEMO | 200094018 | Water | 29-SEP-94 12:30 | 04-OCT-94 09:00 | 04-NOV-94 | FED-EX | 3* | Sample not Screened |
| 2 VI - Vial-40ml | | VOA/8240/04 | S | COLD | 28-OCT-94 | 13-OCT-94 | 109B | (104377:100 104378:99) |
| 6342-013<br>CLP FORMS-COMPOUNDS ADDED-SEE MEMO | 200094024 | Water | 29-SEP-94 09:00 | 04-OCT-94 09:00 | 04-NOV-94 | FED-EX | 1 | Screening not Required |
| 3 VI - Vial-40ml | | VOA/8240/04 | S | COLD | 28-OCT-94 | 13-OCT-94 | 109B | (104379:100 104380:99 104435:98) |
| 6342-014<br>CLP FORMS | 200093917 | Water | 29-SEP-94 12:25 | 04-OCT-94 09:00 | 04-NOV-94 | FED-EX | 3* | Sample not Screened |
| 1 VI - Vial-40ml | | PCB/8080/04 | S | COLD | 28-OCT-94 | 06-OCT-94 | S5G | (104384:100) |
| 6342-014MS<br>CLP FORMS | 200093917 | Water | 29-SEP-94 12:25 | 04-OCT-94 09:00 | 04-NOV-94 | FED-EX | 3* | Sample not Screened |
| 1 VI - Vial-40ml | | PCB/8080/04 | S | COLD | 28-OCT-94 | 06-OCT-94 | S5G | (104384:100) |
| 6342-014MSD<br>CLP FORMS | 200093917 | Water | 29-SEP-94 12:25 | 04-OCT-94 09:00 | 04-NOV-94 | FED-EX | 3* | Sample not Screened |
| 1 VI - Vial-40ml | | PCB/8080/04 | S | COLD | 28-OCT-94 | 06-OCT-94 | S5G | (104384:100) |

3*=Sample has not been rad screened.



000502

00724L

000503

Quanterra October 05, 1994 10:10 am
Account: 10872 Project: 500.01 Fernald Env. Restoration Mgt. Corp. QAS No. 500 Rev. 2
Master Sample Login: 6342

Project Manager: R. White

Draft: Final: Entered and Reviewed by:_____ PM Review:_____

Sample Header Template: _____

| Sample No. / Comments / Date: | Client ID | C-Matrix | Date: Collected | Received | Due | Shipper | Rad Category | Rad Sample No. |
|---|---|---|---|---|---|---|---|---|
| 6342-015 / CLP FORMS | 200093925 | Water | 29-SEP-94 12:50 | 04-OCT-94 09:00 | 04-NOV-94 | FED-EX | 3* | Sample not Screened |

| # | Container Type | Analysis | Class | Preservative | Anal. Due Date | Hold Date | Site | (Container Numbers:% Filled) |
|---|---|---|---|---|---|---|---|---|
| 1 | VI - Vial-40ml | PCB/8080/94 | S | COLD | 28-OCT-94 | 06-OCT-94 | SSG | (104390:100) |

| Sample No. / Comments / Date: | Client ID | C-Matrix | Date: Collected | Received | Due | Shipper | Rad Category | Rad Sample No. |
|---|---|---|---|---|---|---|---|---|
| 6342-016 / CLP FORMS | 200094022 | Water | 29-SEP-94 12:30 | 04-OCT-94 09:00 | 04-NOV-94 | FED-EX | 3* | Sample not Screened |

| # | Container Type | Analysis | Class | Preservative | Anal. Due Date | Hold Date | Site | (Container Numbers:% Filled) |
|---|---|---|---|---|---|---|---|---|
| 1 | VI - Vial-40ml | PCB/8080/94 | S | COLD | 28-OCT-94 | 06-OCT-94 | SSG | (104391:100) |

To: Don Hesse
From: Bob White/Kathy Giacopelli

Date: October 11, 1994

Even though hold time have expired extract from sample container of the same location. Do not use the extract from the 40 ml vials extracted.

Analyze the PCB/8080 from the one gallon BNA containers for the following samples:

| DO NOT USE | | USE INSTEAD | |
|---|---|---|---|
| 200093933 | 6271-002 | 200093929 | 6271-005 |
| 200093917 | 6342-014 | 200093913 | 6342-007 |
| 200093925 | 6342-015 | 200093921 | 6342-008 |
| 200094022 | 6342-016 | 200094017 | 6342-009 |

For PEST/8080 analysis for sample 200096770 (6199-005) run at 9 or 10 grams "as is" per client

Date: 10-05-94
To : Don Hesse
From: Bob White/Kathy Giacopelli

Per client request, please add the following Table 4 (VOA8240) compounds to Table 5 for the following releases and samples:

Chloroform
1,2 Dichloroethane
1,1 Dichloroethylene
Vinyl Chloride

Release 3975

| Client ID | Quanterra ID |
|---|---|
| 200093966 | 6172-004 |
| 200093997 | 6172-006 |
| 200094002 | 6172-010 |

Release 4052

| Client ID | Quanterra ID |
|---|---|
| 200093930 | 6271-001 |
| 200093935 | 6271-006 |
| 200093940 | 6271-009 |
| 200093953 | 6271-018 |

Release 4096

| Client ID | Quanterra ID |
|---|---|
| 200093914 | 6342-010 |
| 200093922 | 6342-011 |
| 200094018 | 6342-012 |
| 200094024 | 6342-013 |

U.S. EPA - CLP

007211

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

) Name: ITAS_ST._LOUIS_____ Contract: 500.01____

) Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4096_____

V No.: SW846

| EPA Sample No. | Lab Sample ID |
|---|---|
| 200093911 | 6342-001 |
| 200093911D | 6342-001D |
| 200093911S | 6342-001S |
| 200093919 | 6342-002 |
| 200094015 | 6342-003 |

re ICP interelement corrections applied ? Yes/No YES

re ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

nments:

certify that this data package is in compliance with the terms and nditions of the contract, both technically and for completeness, for ner than the conditions detailed above. Release of the data contained this hardcopy data package and in the computer-readable data submitted floppy diskette has been authorized by the Laboratory Manager or the nager's designee, as verified by the following signature.

gnature: Robert E. White Name: Robert E. White

te: Nov. 16, 1994 Title: Project Manager



000506

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE N

200093911

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____
Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: 4096____
Matrix (soil/water): WATER Lab Sample ID: 6342-00
Level (low/med): LOW__ Date Received: 10/04/9
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic | 45.6 | U | | P |
| 7440-39-3 | Barium | 707 | B | | P |
| 7440-43-9 | Cadmium | 20.4 | | | P |
| 7440-47-3 | Chromium | 400 | | | P |
| 7439-92-1 | Lead | 8910 | | | P |
| 7439-97-6 | Mercury | 1.0 | | | CV |
| 7782-49-2 | Selenium | 41.9 | U | | P |
| 7440-22-4 | Silver | 37.0 | U | N | P |

Color Before: _____ Clarity Before: _____ Texture: ___
Color After: _____ Clarity After: _____ Artifacts: ___

Comments:

FORM I - IN

SW-84

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

200093919

) Name: ITAS_ST._LOUIS  Contract: 500.01
) Code: ITMO  Case No.:  SAS No.:  SDG No.: 4096
:rix (soil/water): WATER  Lab Sample ID: 6342-002
/el (low/med): LOW  Date Received: 10/04/94
;olids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic | 45.6 | U | | P |
| 7440-39-3 | Barium | 1300 | B | | P |
| 7440-43-9 | Cadmium | 20.9 | | | P |
| 7440-47-3 | Chromium | 376 | | | P |
| 7439-92-1 | Lead | 11000 | | | P |
| 7439-97-6 | Mercury | 1.0 | | | CV |
| 7782-49-2 | Selenium | 41.9 | U | | P |
| 7440-22-4 | Silver | 37.0 | U | N | P |

lor Before:  Clarity Before:  Texture:
lor After:  Clarity After:  Artifacts:

nments:

FORM I - IN

SW-846

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO

200094015

Lab Name: ITAS_ST._LOUIS Contract: 500.01

Lab Code: ITMO Case No.: SAS No.: SDG No.: 4096

Matrix (soil/water): WATER Lab Sample ID: 6342-00

Level (low/med): LOW Date Received: 10/04/94

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic | 45.6 | U | | P |
| 7440-39-3 | Barium | 5.6 | B | | P |
| 7440-43-9 | Cadmium | 1.5 | U | | P |
| 7440-47-3 | Chromium | 5.3 | U | | P |
| 7439-92-1 | Lead | 423 | U | | P |
| 7439-97-6 | Mercury | 0.35 | | | CV |
| 7782-49-2 | Selenium | 41.9 | U | | P |
| 7440-22-4 | Silver | 37.0 | U | N | P |

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

FORM I - IN

SW-84

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

lame: ITAS_ST._LOUIS_____ Contract: 500.01____

:ode: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4096_____

.al Calibration Source: SOL+/LL/SPX_

.nuing Calibration Source: SOL+/LL/SPX_

Concentration Units: ug/L

| lyte | Initial Calibration True | Initial Calibration Found | Initial Calibration %R(1) | Continuing Calibration True | Continuing Calibration Found | Continuing Calibration %R(1) | Continuing Calibration Found | Continuing Calibration %R(1) | M |
|---|---|---|---|---|---|---|---|---|---|
| enic | 4000.0 | 4210.33 | 105.3 | 4000.0 | 4019.33 | 100.5 | 4098.63 | 102.5 | P |
| ium | | | | | | | | | NR |
| nium | 4000.0 | 3998.77 | 100.0 | 4000.0 | 3851.97 | 96.3 | 3903.54 | 97.6 | P |
| omium | 4000.0 | 3991.40 | 99.8 | 4000.0 | 3829.08 | 95.7 | 3871.98 | 96.8 | P |
| d | | | | | | | | | NR |
| cury | 6.0 | 6.08 | 101.3 | 4.0 | 3.87 | 96.8 | 3.94 | 98.5 | CV |
| enium | 4000.0 | 3945.83 | 98.6 | 4000.0 | 3836.99 | 95.9 | 3909.32 | 97.7 | P |
| ver | | | | | | | | | NR |

Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

SW-846

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4096_____

Initial Calibration Source: SOL+/LL/SPX_

Continuing Calibration Source: SOL+/LL/SPX_

Concentration Units: ug/L

| Analyte | Initial Calibration True | Initial Calibration Found | Initial Calibration %R(1) | Continuing Calibration True | Continuing Calibration Found | Continuing Calibration %R(1) | Continuing Calibration Found | Continuing Calibration %R(1) |
|---|---|---|---|---|---|---|---|---|
| Arsenic | | | | 4000.0 | 3855.51 | 96.4 | | |
| Barium | | | | | | | | |
| Cadmium | | | | 4000.0 | 3676.91 | 91.9 | | |
| Chromium | | | | 4000.0 | 3611.99 | 90.3 | | |
| Lead | | | | | | | | |
| Mercury | | | | | | | | |
| Selenium | | | | 4000.0 | 3739.50 | 93.5 | | |
| Silver | | | | | | | | |

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

SW-84(

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

ame: ITAS_ST._LOUIS_____ Contract: 500.01____

ode: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4096_____

al Calibration Source: SOL+/LL/SPX_

nuing Calibration Source: SOL+/LL/SPX_

Concentration Units: ug/L

| yte | Initial Calibration True | Initial Calibration Found | Initial Calibration %R(1) | Continuing Calibration True | Continuing Calibration Found | Continuing Calibration %R(1) | Continuing Calibration Found | Continuing Calibration %R(1) | M |
|---|---|---|---|---|---|---|---|---|---|
| enic | | | | | | | | | NR |
| um | 4000.0 | 3842.92 | 96.1 | 4000.0 | 3857.36 | 96.4 | 3819.27 | 95.5 | P |
| ium | | | | | | | | | NR |
| mium | | | | | | | | | NR |
| l | 4000.0 | 4048.96 | 101.2 | 4000.0 | 4041.52 | 101.0 | 3961.48 | 99.0 | P |
| cury | 6.0 | 6.10 | 101.7 | 4.0 | 3.89 | 97.2 | 3.70 | 92.5 | CV |
| enium | | | | | | | | | NR |
| er | 1000.0 | 1004.05 | 100.4 | 1000.0 | 1002.00 | 100.2 | 992.98 | 99.3 | P |

Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

SW-846

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4096_____

Initial Calibration Source: SOL+/LL/SPX_

Continuing Calibration Source: SOL+/LL/SPX_

Concentration Units: ug/L

| Analyte | Initial Calibration True | Initial Calibration Found | Initial Calibration %R(1) | Continuing Calibration True | Continuing Calibration Found | Continuing Calibration %R(1) | Continuing Calibration Found | Continuing Calibration %R(1) |
|---|---|---|---|---|---|---|---|---|
| Arsenic | | | | | | | | |
| Barium | | | | 4000.0 | 3887.12 | 97.2 | 3925.92 | 98.1 |
| Cadmium | | | | | | | | |
| Chromium | | | | | | | | |
| Lead | | | | 4000.0 | 4061.49 | 101.5 | 4157.34 | 103.9 |
| Mercury | | | | | | | | |
| Selenium | | | | | | | | |
| Silver | | | | 1000.0 | 1014.23 | 101.4 | 1022.24 | 102.2 |

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

SW-8

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 4096_____

AA CRDL Standard Source: SPX/SOL+/LL_

ICP CRDL Standard Source: SOL+/SPX____

Concentration Units: ug/L

| Analyte | CRDL Standard for AA | | | CRDL Standard for ICP | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Initial | | Final | |
| | True | Found | %R | True | Found | %R | Found | %R |
| Arsenic | | | | | | | | |
| Barium | | | | | | | | |
| Cadmium | | | | | | | | |
| Chromium | | | | | | | | |
| Lead | | | | | | | | |
| Mercury | 0.2 | 0.16 | 80.0 | | | | | |
| Selenium | | | | | | | | |
| Silver | | | | | | | | |

FORM II (PART 2) - IN

SW-846

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 4096_____

AA CRDL Standard Source: SPX/SOL+/LL_

ICP CRDL Standard Source: SOL+/SPX____

Concentration Units: ug/L

| Analyte | CRDL Standard for AA | | | CRDL Standard for ICP | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Initial | | Final | |
| | True | Found | %R | True | Found | %R | Found | %R |
| Arsenic | | | | | | | | |
| Barium | | | | | | | | |
| Cadmium | | | | | | | | |
| Chromium | | | | | | | | |
| Lead | | | | | | | | |
| Mercury | 0.2 | 0.23 | 115.0 | | | | | |
| Selenium | | | | | | | | |
| Silver | | | | | | | | |

FORM II (PART 2) - IN

SW-846

U.S. EPA - CLP

3
BLANKS

Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4096_____

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

| Analyte | Initial Calib. Blank (ug/L) | C | Continuing Calibration Blank (ug/L) 1 | C | 2 | C | 3 | C | Preparation Blank | C | M |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 45.6 | U | 45.6 | U | 45.6 | U | 45.6 | U | 45.600 | U | P |
| Barium | 1.7 | B | 2.3 | B | 3.0 | B | 1.7 | B | 1.130 | B | P |
| Beryllium | 3.2 | B | 1.8 | B | 1.6 | B | 1.5 | U | 1.500 | U | P |
| Chromium | 5.3 | U | -6.0 | B | -5.6 | B | -8.0 | B | -10.420 | B | P |
| Cobalt | 42.3 | U | 42.3 | U | 42.3 | U | 42.3 | U | 42.300 | U | P |
| Mercury | 0.1 | U | 0.1 | U | -0.1 | B | | | 0.193 | B | CV |
| Selenium | 41.9 | U | 41.9 | U | 41.9 | U | 41.9 | U | 41.900 | U | P |
| Silver | 3.7 | U | 3.7 | U | 3.7 | U | 3.7 | U | 3.700 | U | P |

FORM III - IN

SW-846

U.S. EPA - CLP

3
BLANKS

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4096_____

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

| Analyte | Initial Calib. Blank (ug/L) | C | Continuing Calibration Blank (ug/L) 1 | C | 2 | C | 3 | C | Prepa-ration Blank | C |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | | | | | | | | | | |
| Barium | | | 1.7 | B | | | | | | |
| Cadmium | | | | | | | | | | |
| Chromium | | | | | | | | | | |
| Lead | | | 42.3 | U | | | | | | |
| Mercury | 0.1 | U | 0.1 | U | 0.1 | U | | | | |
| Selenium | | | | | | | | | | |
| Silver | | | 3.7 | U | | | | | | |

FORM III - IN

SW-

U.S. EPA - CLP

007211

4

ICP INTERFERENCE CHECK SAMPLE

lame: ITAS_ST._LOUIS_____ Contract: 500.01____

:ode: ITMO__Case No.: _____ SAS No: _____ SDG No.: 4096_____

:D Number: TJA1100_____ ICS Source: SOL+/SPX____

Concentration Units: ug/L

| Analyte | True Sol. A | True Sol. AB | Initial Found Sol. A | Initial Found Sol. AB | Initial Found %R | Final Found Sol. A | Final Found Sol. AB | Final Found %R |
|---|---|---|---|---|---|---|---|---|
| rsenic | | | | | | | | |
| arium | 0 | 500 | 9 | 470.3 | 94.1 | 9 | 481.6 | 96.3 |
| admium | | | | | | | | |
| hromium | | | | | | | | |
| ead | 0 | 1000 | 39 | 960.2 | 96.0 | 40 | 987.1 | 98.7 |
| ercury | | | | | | | | |
| elenium | | | | | | | | |
| ilver | 0 | 1000 | -4 | 999.9 | 100.0 | -6 | 1022.0 | 102.2 |

FORM IV - IN

SW-846

000518

U.S. EPA - CLP

4

# ICP INTERFERENCE CHECK SAMPLE

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__Case No.: _____ SAS No: _____ SDG No.: 4096_____

ICP ID Number: TJA9000_____ ICS Source: SOL+/SPX____

Concentration Units: ug/L

| Analyte | True Sol. A | True Sol. AB | Initial Found Sol. A | Initial Found Sol. AB | Initial Found %R | Final Found Sol. A | Final Found Sol. AB | Final Found %R |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 0 | 0 | -123 | -87.4 | | -15 | -53.4 | |
| Barium | | | | | | | | |
| Cadmium | 0 | 1000 | -10 | 948.7 | 94.9 | -10 | 884.8 | 88.5 |
| Chromium | 0 | 500 | -10 | 471.7 | 94.3 | -12 | 432.6 | 86.5 |
| Lead | | | | | | | | |
| Mercury | | | | | | | | |
| Selenium | 0 | 0 | 27 | -19.7 | | 21 | 39.6 | |
| Silver | | | | | | | | |

FORM IV - IN

SW-846

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

200093911S

ame: ITAS_ST._LOUIS_____ Contract: 500.01____

ode: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4096_____

x (soil/water): WATER_ Level (low/med): LOW___

ids for Sample: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

| lyte | Control Limit %R | Spiked Sample Result (SSR) | C | Sample Result (SR) | C | Spike Added (SA) | %R | Q | M |
|---|---|---|---|---|---|---|---|---|---|
| nic__ | 75-125_ | 1880.5900_ | _ | 45.6000 | U | 2000.00 | 94.0 | _ | P_ |
| um__ | 75-125_ | 2848.1100_ | _ | 706.7100 | B | 2000.00 | 107.1 | _ | P_ |
| ium__ | 75-125_ | 64.7700_ | _ | 20.4400 | _ | 50.00 | 88.7 | _ | P_ |
| mium_ | 75-125_ | 561.9500_ | _ | 399.5000 | _ | 200.00 | 81.2 | _ | P_ |
| | | 10411.0300_ | _ | 8910.0100 | _ | 500.00 | 300.2 | _ | P_ |
| ury__ | 75-125_ | 1.9100_ | _ | 1.0400 | _ | 1.00 | 87.0 | _ | CV |
| nium_ | 75-125_ | 1752.5900_ | _ | 41.9000 | U | 2000.00 | 87.6 | _ | P_ |
| er___ | 75-125_ | 37.0000_ | U | 37.0000 | U | 50.00 | 0.0 | N | P_ |

ents:

FORM V (Part 1) - IN SW-846

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

200093911D

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No._____ SAS No._____ SDG No.: 4096___

Matrix (soil/water): WATER Level (low/med): _LOW

% Solids for Sample: __0.0 % Solids for Duplicate: ___0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

| Analyte | Control Limit | Sample (S) | C | Duplicate (D) | C | RPD | Q | M |
|---|---|---|---|---|---|---|---|---|
| Arsenic | | 45.6000 | U | 45.6000 | U | | | P |
| Barium | 200.0 | 706.7100 | B | 788.8000 | B | 11.0 | | P |
| Cadmium | 5.0 | 20.4400 | | 19.5900 | | 4.2 | | P |
| Chromium | | 399.5000 | | 380.0800 | | 5.0 | | P |
| Lead | | 8910.0100 | | 9369.4100 | | 5.0 | | P |
| Mercury | | 1.0400 | | [illegible].0500 | | 1.0 | | CV |
| Selenium | | 41.9000 | U | [illegible]1.9000 | U | | | P |
| Silver | | 37.0000 | U | 37.0000 | U | | | P |

FORM VI - IN

SW-846

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4096_____

l LCS Source: _____

ous LCS Source: SOL+_____

| Lyte | Aqueous (ug/L) True | Found | %R | Solid (mg/kg) True | Found | C | Limits | | %R |
|---|---|---|---|---|---|---|---|---|---|
| enic | 1000.0 | 1168.96 | 116.9 | | | | | | |
| ium | 1000.0 | 1052.33 | 105.2 | | | | | | |
| nium | 1000.0 | 1101.48 | 110.1 | | | | | | |
| omium | 1000.0 | 1087.07 | 108.7 | | | | | | |
| i | 1000.0 | 1149.04 | 114.9 | | | | | | |
| cury | | | | | | | | | |
| enium | 1000.0 | 1138.56 | 113.9 | | | | | | |
| ver | 250.0 | 191.31 | 76.5 | | | | | | |

FORM VII - IN

SW-846

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4096___

Solid LCS Source: _____

Aqueous LCS Source: SOL+_____

| Analyte | Aqueous (ug/L) True | Found | %R | Solid (mg/kg) True | Found | C | Limits | | % |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | | | | | | | | | |
| Barium | | | | | | | | | |
| Cadmium | | | | | | | | | |
| Chromium | | | | | | | | | |
| Lead | | | | | | | | | |
| Mercury | 3.0 | 3.24 | 108.0 | | | | | | |
| Selenium | | | | | | | | | |
| Silver | | | | | | | | | |

FORM VII - IN

SW-846

000523

U.S. EPA - CLP

8

STANDARD ADDITION RESULTS

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4096_____

Concentration Units: ug/L

| EPA Sample No. | An | 0 ADD ABS | 1 ADD CON | 1 ADD ABS | 2 ADD CON | 2 ADD ABS | 3 ADD CON | 3 ADD ABS | Final Conc. | r | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |

FORM VIII - IN SW-846

U.S. EPA - CLP

10
Instrument Detection Limits (Quarterly)

Lab Name: ITAS_ST._LOUIS
Lab Code: ITMO__ Case No.:
ICP ID Number: TJA1100
Flame AA ID Number :
Furnace AA ID Number :

Contract: 500.01
SAS No.: SDG No.: 4096
Date: 10/01/94

| Analyte | Wave-length (nm) | Back-ground | CRDL (ug/L) | IDL (ug/L) | M |
|---|---|---|---|---|---|
| Arsenic | | | 500 | | NR |
| Barium | 455.40 | | 200 | 0.4 | P |
| Cadmium | | | 5 | | NR |
| Chromium | | | 20 | | NR |
| Lead | 220.35 | | 100 | 42.3 | P |
| Mercury | | | 0.2 | | NR |
| Selenium | | | 250 | | NR |
| Silver | 328.07 | | 10 | 3.7 | P |

Comments:

FORM X - IN

SW-84

000525

U.S. EPA - CLP

007211

10

Instrument Detection Limits (Quarterly)

Name: ITAS_ST._LOUIS
Code: ITMO__ Case No.:
ID Number: TJA9000
e AA ID Number :
ace AA ID Number :

Contract: 500.01
SAS No.: SDG No.: 4096
Date: 10/01/94

| Analyte | Wave-length (nm) | Back-ground | CRDL (ug/L) | IDL (ug/L) | M |
|---|---|---|---|---|---|
| Arsenic | 193.70 | | 500 | 45.6 | P |
| Barium | | | 200 | | NR |
| Cadmium | 226.50 | | 5 | 1.5 | P |
| Chromium | 267.72 | | 20 | 5.3 | P |
| Lead | | | 100 | | NR |
| Mercury | | | 0.2 | | NR |
| Selenium | 196.03 | | 250 | 41.9 | P |
| Silver | | | 10 | | NR |

ıents:

FORM X - IN SW-846

000526

U.S. EPA - CLP

10
Instrument Detection Limits (Quarterly)

Lab Name: ITAS_ST._LOUIS
Lab Code: ITMO__ Case No.: _____
ICP ID Number: _____
Flame AA ID Number : PS200_____
Furnace AA ID Number : _____

Contract: 500.01____
SAS No.: _____ SDG No.: 4096_____
Date: 10/01/94

| Analyte | Wave-length (nm) | Back-ground | CRDL (ug/L) | IDL (ug/L) | M |
|---|---|---|---|---|---|
| Arsenic | | | 500 | | NR |
| Barium | | | 200 | | NR |
| Cadmium | | | 5 | | NR |
| Chromium | | | 20 | | NR |
| Lead | | | 100 | | NR |
| Mercury | 253.70 | | 0.2 | 0.1 | CV |
| Selenium | | | 250 | | NR |
| Silver | | | 10 | | NR |

Comments:

FORM X - IN

SW-846

U.S. EPA - CLP

007211

11A

ICP Interelement Correction Factors (Annually)

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4096_____

ICP ID Number: TJA1100_____ Date: 10/04/94

| Analyte | Wave-length (nm) | Interelement Correction Factors for : Al | Ca | Fe | Mg | NA |
|---|---|---|---|---|---|---|
| Arsenic | 193.70 | 0.0071700 | 0.0000000 | 0.0006000 | -0.0007500 | 0.0000000 |
| Barium | 455.40 | 0.0000000 | 0.0000100 | 0.0000000 | 0.0000000 | 0.0000000 |
| Cadmium | 228.80 | 0.0000000 | 0.0000000 | 0.0000000 | 0.0000000 | 0.0000000 |
| Chromium | 267.72 | 0.0000110 | 0.0000000 | -0.0000200 | -0.0000140 | 0.0000000 |
| Lead | 220.35 | 0.0016600 | 0.0000000 | 0.0000000 | 0.0000000 | 0.0000000 |
| Mercury | | | | | | |
| Selenium | 196.03 | 0.0000000 | 0.0000000 | -0.0024200 | 0.0000500 | 0.0000000 |
| Silver | 328.07 | 0.0000000 | 0.0000080 | -0.0002750 | 0.0000000 | 0.0000100 |

Comments:

FORM XI (Part 1) - IN SW-846

U.S. EPA - CLP

11B
ICP Interelement Correction Factors (Annually)

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4096_____

ICP ID Number: TJA1100_____ Date: 10/04/94

| Analyte | Wave-length (nm) | Interelement Correction Factors for : TH | U_ | __ | __ | __ |
|---|---|---|---|---|---|---|
| Arsenic | 193.70 | -0.0000460 | 0.0028200 | | | |
| Barium | 455.40 | 0.0003100 | 0.0000900 | | | |
| Cadmium | 228.80 | 0.0000000 | -0.0001000 | | | |
| Chromium | 267.72 | -0.0015500 | -0.0040600 | | | |
| Lead | 220.35 | -0.0018000 | 0.0011700 | | | |
| Mercury | | | | | | |
| Selenium | 196.03 | -0.0033900 | 0.0002490 | | | |
| Silver | 328.07 | -0.0019300 | 0.0015870 | | | |

Comments:

FORM XI (Part 2) - IN SW-8

U.S. EPA - CLP

11A

ICP Interelement Correction Factors (Annually)

007211

Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4096_____

ID Number: TJA9000_____ Date: 03/28/94

| ıalyte | Wave-length (nm) | Interelement Correction Factors for : Al | Ca | Fe | Mg | NA |
|---|---|---|---|---|---|---|
| ;enic | 193.70 | 0.0047500 | 0.0000000 | 0.0002900 | 0.0000000 | 0.0000000 |
| :ium | 493.40 | 0.0000000 | 0.0000000 | 0.0000000 | 0.0000000 | 0.0000000 |
| ımium | 226.50 | 0.0000100 | 0.0000000 | 0.0001400 | 0.0000000 | 0.0000000 |
| :omium | 267.72 | 0.0000000 | -0.0000400 | 0.0000500 | -0.0000100 | 0.0000000 |
| ıd | 220.35 | 0.0009600 | -0.0000300 | 0.0000000 | 0.0000000 | 0.0000000 |
| :cury | | | | | | |
| .enium | 196.03 | 0.0000000 | 0.0000000 | 0.0003900 | 0.0000000 | 0.0000000 |
| ıver | 328.07 | 0.0000000 | -0.0000100 | -0.0002500 | -0.0000200 | 0.0000100 |

ıents:

FORM XI (Part 1) - IN SW-846

000530

U.S. EPA - CLP

12
ICP LINEAR RANGES (QUARTERLY)

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4096_____

ICP ID Number:TJA1100_____ Date: 10/01/94

| Analyte | Integ. Time (sec.) | Concentration (ug/L) | M |
|---|---|---|---|
| Arsenic | 5.00 | 50000.0 | P |
| Barium | 5.00 | 100000.0 | P |
| Cadmium | 5.00 | 50000.0 | P |
| Chromium | 5.00 | 40000.0 | P |
| Lead | 5.00 | 40000.0 | P |
| Mercury | | | NR |
| Selenium | 5.00 | 100000.0 | P |
| Silver | 5.00 | 10000.0 | P |

Comments:

FORM XII - IN SW-84

U.S. EPA - CLP

007211

12
ICP LINEAR RANGES (QUARTERLY)

Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4096_____

ID Number:TJA9000_____ Date: 10/01/94

| Analyte | Integ. Time (sec.) | Concentration (ug/L) | M |
|---|---|---|---|
| Arsenic | 5.00 | 100000.0 | P |
| Barium | 5.00 | 100000.0 | P |
| Cadmium | 5.00 | 50000.0 | P |
| Chromium | 5.00 | 100000.0 | P |
| Lead | 5.00 | 20000.0 | P |
| Mercury | | | NR |
| Selenium | 5.00 | 100000.0 | P |
| Silver | 5.00 | 10000.0 | P |

ents:

FORM XII - IN SW-846

000532

U.S. EPA - CLP

13
PREPARATION LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4096_____

Method: P_

| EPA Sample No. | Preparation Date | Weight (gram) | Volume (mL) |
|---|---|---|---|
| 200093911 | 10/25/94 | | 100 |
| 200093911D | 10/25/94 | | 100 |
| 200093911S | 10/25/94 | | 100 |
| 200093919 | 10/25/94 | | 100 |
| 200094015 | 10/25/94 | | 100 |
| LCSW49249 | 10/25/94 | | 100 |
| PBW49249 | 10/25/94 | | 100 |

FORM XIII - IN SW-846

U.S. EPA - CLP

13
PREPARATION LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4096_____

Method: CV

| EPA Sample No. | Preparation Date | Weight (gram) | Volume (mL) |
|---|---|---|---|
| 200093911 | 10/25/94 | | 100 |
| 200093911D | 10/25/94 | | 100 |
| 200093911S | 10/25/94 | | 100 |
| 200093919 | 10/25/94 | | 100 |
| 200094015 | 10/25/94 | | 100 |
| LCSW49245 | 10/25/94 | | 100 |
| PBW49245 | 10/25/94 | | 100 |

FORM XIII - IN SW-846

U.S. EPA - CLP

14

# ANALYSIS RUN LOG

Lab Name: ITAS_ST._LOUIS

Contract: 500.01

Lab Code: ITMO  Case No.:

SAS No.:  SDG No.: 4096

Instrument ID Number: TJA1100

Method: P_

Start Date: 10/29/94

End Date: 10/29/94

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | |
| S0 | 1.00 | 1430 | | | X | | | X | | | X | | | | | | | | | | | | | | |
| S | 1.00 | 1433 | | | X | | | X | | | X | | | | | | | | | | | | | | |
| S | 1.00 | 1436 | | | | | | | | | | | | | | | | | | | | | | | |
| S | 1.00 | 1439 | | | X | | | X | | | X | | | | | | | | | | | | | | |
| S | 1.00 | 1442 | | | | | | | | | | | | | | | | | | | | | | | |
| S | 1.00 | 1445 | | | | | | | | | | | | | | | | | | | | | | | |
| S | 1.00 | 1448 | | | X | | | X | | | X | | | | | | | | | | | | | | |
| ICV | 1.00 | 1451 | | | X | | | X | | | X | | | | | | | | | | | | | | |
| ICB | 1.00 | 1455 | | | X | | | X | | | X | | | | | | | | | | | | | | |
| ICSA | 1.00 | 1458 | | | X | | | X | | | X | | | | | | | | | | | | | | |
| ICSAB | 1.00 | 1501 | | | X | | | X | | | X | | | | | | | | | | | | | | |
| PBW49249 | 1.00 | 1504 | | | X | | | X | | | X | | | | | | | | | | | | | | |
| LCSW49249 | 1.00 | 1507 | | | X | | | X | | | X | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1510 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1513 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1516 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1520 | | | | | | | | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 1523 | | | X | | | X | | | X | | | | | | | | | | | | | | |
| CCB | 1.00 | 1526 | | | X | | | X | | | X | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1529 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1532 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1535 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1538 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1542 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1545 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1548 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1551 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1554 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1557 | | | | | | | | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 1600 | | | X | | | X | | | X | | | | | | | | | | | | | | |
| CCB | 1.00 | 1604 | | | X | | | X | | | X | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1607 | | | | | | | | | | | | | | | | | | | | | | | |

FORM XIV - IN

SW-8

U.S. EPA - CLP

14
ANALYSIS RUN LOG

'ame: ITAS_ST._LOUIS_____ Contract: 500.01____

:ode: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4096_____

'ument ID Number: TJA1100_____ Method: P_

: Date: 10/29/94 End Date: 10/29/94

| :PA ımple ło. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | | | |
| ;ZZ | 1.00 | 1610 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ;ZZ | 1.00 | 1613 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ;ZZ | 1.00 | 1616 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ;ZZ | 1.00 | 1619 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ;ZZ | 1.00 | 1622 | | | | | | | | | | | | | | | | | | | | | | | | | |
| )93911 | 10.0 | 1626 | | | X | | | X | | | X | | | | | | | | | | | | | | | | |
| )93911S | 10.0 | 1629 | | | X | | | X | | | X | | | | | | | | | | | | | | | | |
| )93911D | 10.0 | 1632 | | | X | | | X | | | X | | | | | | | | | | | | | | | | |
| | 1.00 | 1635 | | | X | | | X | | | X | | | | | | | | | | | | | | | | |
| | 1.00 | 1638 | | | X | | | X | | | X | | | | | | | | | | | | | | | | |
| )93919 | 10.0 | 1641 | | | X | | | X | | | X | | | | | | | | | | | | | | | | |
| )94015 | 10.0 | 1644 | | | X | | | X | | | X | | | | | | | | | | | | | | | | |
| \ | 1.00 | 1648 | | | X | | | X | | | X | | | | | | | | | | | | | | | | |
| \B | 1.00 | 1651 | | | X | | | X | | | X | | | | | | | | | | | | | | | | |
| | 1.00 | 1654 | | | X | | | X | | | X | | | | | | | | | | | | | | | | |
| | 1.00 | 1657 | | | X | | | X | | | X | | | | | | | | | | | | | | | | |

FORM XIV - IN SW-846

U.S. EPA - CLP

14

ANALYSIS RUN LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4096_____

Instrument ID Number: TJA9000_____ Method: P_

Start Date: 10/28/94 End Date: 10/28/94

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | |
| SO | 1.00 | 1239 | | X | - | X | X | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S | 1.00 | 1243 | | X | - | X | X | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S | 1.00 | 1246 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S | 1.00 | 1249 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S | 1.00 | 1252 | | X | - | X | X | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S | 1.00 | 1254 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S | 1.00 | 1257 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ICV | 1.00 | 1300 | | X | - | X | X | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ICB | 1.00 | 1303 | | X | - | X | X | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ICSA | 1.00 | 1306 | | X | - | X | X | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ICSAB | 1.00 | 1309 | | X | - | X | X | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1312 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1315 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1318 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1321 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1324 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1327 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1333 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCV | 1.00 | 1336 | | X | - | X | X | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCB | 1.00 | 1339 | | X | - | X | X | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PBW49249 | 1.00 | 1342 | | X | - | X | X | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| LCSW49249 | 1.00 | 1345 | | X | - | X | X | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1348 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1351 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1354 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1357 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCV | 1.00 | 1400 | | X | - | X | X | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCB | 1.00 | 1403 | | X | - | X | X | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 200093911 | 1.00 | 1412 | | X | - | X | X | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 200093911S | 1.00 | 1415 | | X | - | X | X | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 200093911D | 1.00 | 1418 | | X | - | X | X | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 200093919 | 1.00 | 1421 | | X | - | X | X | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

FORM XIV - IN SW-84

U.S. EPA - CLP

14
ANALYSIS RUN LOG

007211

Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4096_____

rument ID Number: TJA9000_____ Method: P_

t Date: 10/28/94 End Date: 10/28/94

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | | | |
| 094015 | 1.00 | 1424 | | X | | X | X | | | X | | | | | | | | | | | | | | | | | |
| A | 1.00 | 1427 | | X | | X | X | | | X | | | | | | | | | | | | | | | | | |
| AB | 1.00 | 1429 | | X | | X | X | | | X | | | | | | | | | | | | | | | | | |
| | 1.00 | 1432 | | X | | X | X | | | X | | | | | | | | | | | | | | | | | |
| | 1.00 | 1435 | | X | | X | X | | | X | | | | | | | | | | | | | | | | | |

FORM XIV - IN SW-846

000538

U.S. EPA - CLP

14

ANALYSIS RUN LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4096_____

Instrument ID Number: PS200_____ Method: CV

Start Date: 10/25/94 End Date: 10/25/94

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | |
| S0 | 1.00 | 1456 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S0.5 | 1.00 | 1458 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S1 | 1.00 | 1501 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S2 | 1.00 | 1503 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S5 | 1.00 | 1506 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S10 | 1.00 | 1509 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ICV | 1.00 | 1512 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ICB | 1.00 | 1514 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CRA | 1.00 | 1516 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCV | 1.00 | 1519 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCB | 1.00 | 1522 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PBW49245 | 1.00 | 1524 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| LCSW49245 | 1.00 | 1526 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1529 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1531 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1533 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1535 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1537 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1540 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1542 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1544 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCV | 1.00 | 1547 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCB | 1.00 | 1549 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

FORM XIV - IN SW-84(

U.S. EPA - CLP

007211

14

ANALYSIS RUN LOG

Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4096_____

rument ID Number: PS200_____ Method: CV

: Date: 10/26/94 End Date: 10/26/94

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | | | |
| | 1.00 | 0900 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 5 | 1.00 | 0902 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1.00 | 0905 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1.00 | 0907 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1.00 | 0910 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1.00 | 0913 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1.00 | 0916 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1.00 | 0919 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1.00 | 0921 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1.00 | 0923 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1.00 | 0926 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZ | 1.00 | 0928 | | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 093911 | 1.00 | 0930 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 093911D | 1.00 | 0933 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 093911S | 1.00 | 0936 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 093919 | 1.00 | 0939 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 094015 | 1.00 | 0941 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZ | 1.00 | 0944 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZ | 1.00 | 0946 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZ | 1.00 | 0948 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZ | 1000 | 0950 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1.00 | 0954 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1.00 | 0957 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

FORM XIV - IN SW-846

000540

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200093914

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V34210 SDG No.: 4096

Matrix: (soil/water) WATER Lab Sample ID: 6342-010

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: E1102

Level: (low/med) LOW Date Received: 10/04/94

% Moisture: not dec. Date Analyzed: 10/11/94

Column: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-09-2 | Methylene Chloride | 5 | U |
| 67-64-1 | Acetone | 100 | U |
| 75-69-4 | Trichlorofluoromethane | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 2 | J |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichlorethane | 5 | U |
| 78-93-3 | 2-Butanone | 100 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 9 | |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 50 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 108-88-3 | Toluene | 5 | U |
| 108-90-7 | Chlorobenzene | 5 | U |
| 100-41-4 | Ethylbenzene | 5 | U |
| 1330-20-7 | Xylene (total) | 3 | J |
| 108-94-1 | Cyclohexanone | 150 | U |
| 141-78-6 | Ethyl Acetate | 20 | U |
| 60-29-7 | Diethyl Ether | 20 | U |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200093914MS

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V34210 SDG No.: 4096

Matrix: (soil/water) WATER Lab Sample ID: 6342-010MS

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: E1106

Level: (low/med) LOW Date Received: 10/04/94

% Moisture: not dec. Date Analyzed: 10/11/94

Column: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-09-2 | Methylene Chloride | 5 | U |
| 67-64-1 | Acetone | 100 | U |
| 75-69-4 | Trichlorofluoromethane | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 51 | |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichlorethane | 5 | U |
| 78-93-3 | 2-Butanone | 100 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 8 | |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 79-01-6 | Trichloroethene | 52 | |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 54 | |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 50 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 108-88-3 | Toluene | 54 | |
| 108-90-7 | Chlorobenzene | 53 | |
| 100-41-4 | Ethylbenzene | 5 | U |
| 1330-20-7 | Xylene (total) | 2 | J |
| 108-94-1 | Cyclohexanone | 150 | U |
| 141-78-6 | Ethyl Acetate | 20 | U |
| 60-29-7 | Diethyl Ether | 20 | U |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE

200093914

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V34210 SDG No.: 4096

Matrix: (soil/water) WATER Lab Sample ID: 6342-010MS

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: E1107

Level: (low/med) LOW Date Received: 10/04/94

% Moisture: not dec. Date Analyzed: 10/11/94

Column: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-09-2 | Methylene Chloride | 5 | U |
| 67-64-1 | Acetone | 100 | U |
| 75-69-4 | Trichlorofluoromethane | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 52 | |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichlorethane | 5 | U |
| 78-93-3 | 2-Butanone | 100 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 8 | |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 79-01-6 | Trichloroethene | 53 | |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 55 | |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 50 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 108-88-3 | Toluene | 54 | |
| 108-90-7 | Chlorobenzene | 54 | |
| 100-41-4 | Ethylbenzene | 5 | U |
| 1330-20-7 | Xylene (total) | 3 | J |
| 108-94-1 | Cyclohexanone | 150 | U |
| 141-78-6 | Ethyl Acetate | 20 | U |
| 60-29-7 | Diethyl Ether | 20 | U |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200093922

Name: ITAS-ST.LOUIS Contract: 500-01

Code: ITSL Case No.: V34210 SDG No.: 4096

rix: (soil/water) WATER Lab Sample ID: 6342-011

ple wt/vol: 5.00 (g/mL) ML Lab File ID: E1144

el: (low/med) LOW Date Received: 10/04/94

oisture: not dec. Date Analyzed: 10/13/94

umn: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-09-2 | Methylene Chloride | 5 | U |
| 67-64-1 | Acetone | 17 | J |
| 75-69-4 | Trichlorofluoromethane | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 3 | J |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichlorethane | 5 | U |
| 78-93-3 | 2-Butanone | 11 | J |
| 71-55-6 | 1,1,1-Trichloroethane | 6 | |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 50 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 108-88-3 | Toluene | 5 | U |
| 108-90-7 | Chlorobenzene | 5 | U |
| 100-41-4 | Ethylbenzene | 1 | J |
| 1330-20-7 | Xylene (total) | 5 | U |
| 108-94-1 | Cyclohexanone | 150 | U |
| 141-78-6 | Ethyl Acetate | 20 | U |
| 60-29-7 | Diethyl Ether | 20 | U |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE

200094018

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V34210 SDG No.: 4096

Matrix: (soil/water) WATER Lab Sample ID: 6342-012

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: E1104

Level: (low/med) LOW Date Received: 10/04/94

% Moisture: not dec. Date Analyzed: 10/11/94

Column: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-09-2 | Methylene Chloride | 5 | U |
| 67-64-1 | Acetone | 100 | U |
| 75-69-4 | Trichlorofluoromethane | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 5 | U |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 5 | U |
| 67-66-3 | Chloroform | 14 | |
| 107-06-2 | 1,2-Dichlorethane | 5 | U |
| 78-93-3 | 2-Butanone | 100 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 50 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 108-88-3 | Toluene | 5 | U |
| 108-90-7 | Chlorobenzene | 5 | U |
| 100-41-4 | Ethylbenzene | 5 | U |
| 1330-20-7 | Xylene (total) | 5 | U |
| 108-94-1 | Cyclohexanone | 150 | U |
| 141-78-6 | Ethyl Acetate | 20 | U |
| 60-29-7 | Diethyl Ether | 20 | U |

007211
EPA SAMPLE NO.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

200094024

Name: ITAS-ST.LOUIS Contract: 500-01

Code: ITSL Case No.: V34210 SDG No.: 4096

rix: (soil/water) WATER Lab Sample ID: 6342-013

ple wt/vol: 5.00 (g/mL) ML Lab File ID: E1105

el: (low/med) LOW Date Received: 10/04/94

pisture: not dec. Date Analyzed: 10/11/94

umn: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-09-2 | Methylene Chloride | 5 | U |
| 67-64-1 | Acetone | 100 | U |
| 75-69-4 | Trichlorofluoromethane | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 5 | U |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichlorethane | 5 | U |
| 78-93-3 | 2-Butanone | 100 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 50 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 108-88-3 | Toluene | 5 | U |
| 108-90-7 | Chlorobenzene | 5 | U |
| 100-41-4 | Ethylbenzene | 5 | U |
| 1330-20-7 | Xylene (total) | 5 | U |
| 108-94-1 | Cyclohexanone | 150 | U |
| 141-78-6 | Ethyl Acetate | 20 | U |
| 60-29-7 | Diethyl Ether | 20 | U |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE

VBLK01

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V34210 SDG No.: 4096

Matrix: (soil/water) WATER Lab Sample ID: QCBLK47901

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: E1099

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 10/11/94

Column: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-09-2 | Methylene Chloride | 5 | |
| 67-64-1 | Acetone | 100 | U |
| 75-69-4 | Trichlorofluoromethane | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 5 | U |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichlorethane | 5 | U |
| 78-93-3 | 2-Butanone | 100 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 50 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 108-88-3 | Toluene | 5 | U |
| 108-90-7 | Chlorobenzene | 5 | U |
| 100-41-4 | Ethylbenzene | 5 | U |
| 1330-20-7 | Xylene (total) | 5 | U |
| 108-94-1 | Cyclohexanone | 150 | U |
| 141-78-6 | Ethyl Acetate | 20 | U |
| 60-29-7 | Diethyl Ether | 20 | U |

EPA SAMPLE NO.

VBLK02

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

b Name: ITAS-ST.LOUIS Contract: 500-01

b Code: ITSL Case No.: V34210 SDG No.: 4096

trix: (soil/water) WATER Lab Sample ID: QCBLK48048

mple wt/vol: 5.00 (g/mL) ML Lab File ID: E1128

vel: (low/med) LOW Date Received:

Moisture: not dec. Date Analyzed: 10/12/94

lumn: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-09-2 | Methylene Chloride | 6 | |
| 67-64-1 | Acetone | 100 | U |
| 75-69-4 | Trichlorofluoromethane | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 5 | U |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichlorethane | 5 | U |
| 78-93-3 | 2-Butanone | 100 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 50 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 108-88-3 | Toluene | 5 | U |
| 108-90-7 | Chlorobenzene | 5 | U |
| 100-41-4 | Ethylbenzene | 5 | U |
| 1330-20-7 | Xylene (total) | 5 | U |
| 108-94-1 | Cyclohexanone | 150 | U |
| 141-78-6 | Ethyl Acetate | 20 | U |
| 60-29-7 | Diethyl Ether | 20 | U |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE

VSPK01

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V34210 SDG No.: 4096

Matrix: (soil/water) WATER Lab Sample ID: QCSPK47901

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: E1100

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 10/11/94

Column: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-09-2 | Methylene Chloride | 4 | BJ |
| 67-64-1 | Acetone | 9 | J |
| 75-69-4 | Trichlorofluoromethane | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 49 | |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichlorethane | 5 | U |
| 78-93-3 | 2-Butanone | 100 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 79-01-6 | Trichloroethene | 54 | |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 53 | |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 50 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 108-88-3 | Toluene | 53 | |
| 108-90-7 | Chlorobenzene | 55 | |
| 100-41-4 | Ethylbenzene | 5 | U |
| 1330-20-7 | Xylene (total) | 5 | U |
| 108-94-1 | Cyclohexanone | 150 | U |
| 141-78-6 | Ethyl Acetate | 20 | U |
| 60-29-7 | Diethyl Ether | 20 | U |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VSPK02

ıb Name: ITAS-ST.LOUIS Contract: 500-01

ıb Code: ITSL Case No.: V34210 SDG No.: 4096

ıtrix: (soil/water) WATER Lab Sample ID: QCSPK48048

ımple wt/vol: 5.00 (g/mL) ML Lab File ID: E1129

evel: (low/med) LOW Date Received:

Moisture: not dec. Date Analyzed: 10/12/94

olumn: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-09-2 | Methylene Chloride | 3 | BJ |
| 67-64-1 | Acetone | 13 | J |
| 75-69-4 | Trichlorofluoromethane | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 39 | |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichlorethane | 5 | U |
| 78-93-3 | 2-Butanone | 100 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 79-01-6 | Trichloroethene | 51 | |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 50 | |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 50 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 108-88-3 | Toluene | 47 | |
| 108-90-7 | Chlorobenzene | 51 | |
| 100-41-4 | Ethylbenzene | 5 | U |
| 1330-20-7 | Xylene (total) | 5 | U |
| 108-94-1 | Cyclohexanone | 150 | U |
| 141-78-6 | Ethyl Acetate | 20 | U |
| 60-29-7 | Diethyl Ether | 20 | U |

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V34210 SDG No.: 4096

| | EPA SAMPLE NO. | S1 (TOL) # | S2 (BFB) # | S3 (DCE) # | OTHER | TOT OUT |
|---|---|---|---|---|---|---|
| 01 | 200093914 | 105 | 106 | 88 | 0 | 0 |
| 02 | 200093922 | 109 | 99 | 96 | 0 | 0 |
| 03 | 200094018 | 96 | 100 | 96 | 0 | 0 |
| 04 | 200094024 | 94 | 100 | 96 | 0 | 0 |
| 05 | VSPK01 | 98 | 103 | 94 | 0 | 0 |
| 06 | VSPK02 | 98 | 106 | 97 | 0 | 0 |
| 07 | 200093914MS | 99 | 95 | 93 | 0 | 0 |
| 08 | 200093914MSD | 103 | 95 | 96 | 0 | 0 |
| 09 | VBLK01 | 98 | 104 | 97 | 0 | 0 |
| 10 | VBLK02 | 105 | 101 | 94 | 0 | 0 |

| | | QC LIMITS |
|---|---|---|
| S1 (TOL) | = Toluene-d8 | ( 88-110) |
| S2 (BFB) | = Bromofluorobenzene | ( 86-115) |
| S3 (DCE) | = 1,2-Dichloroethane-d4 | ( 76-114) |

# Column to be used to flag recovery values

• Values outside of contract required QC limits

D Surrogates diluted out

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ab Name: ITAS-ST.LOUIS Contract: 500-01

ab Code: ITSL Case No.: V34210 SDG No.: 4096

atrix Spike - EPA Sample No.: 200093914

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE CONCENTRATION (ug/L) | MS CONCENTRATION (ug/L) | MS % REC # | QC LIMITS REC. |
|---|---|---|---|---|---|
| 1,1-Dichloroethene | 50.0 | 1.83 | 51.2 | 99 | 1-234 |
| Trichloroethene | 50.0 | 0 | 52.0 | 104 | 71-157 |
| Benzene | 50.0 | 0 | 54.2 | 108 | 37-151 |
| Toluene | 50.0 | 0 | 53.6 | 107 | 47-150 |
| Chlorobenzene | 50.0 | 0 | 52.9 | 106 | 37-160 |

| COMPOUND | SPIKE ADDED (ug/L) | MSD CONCENTRATION (ug/L) | MSD % REC # | % RPD # | QC LIMITS RPD | QC LIMITS REC. |
|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 50.0 | 51.9 | 100 | -1 | 14 | 1-234 |
| Trichloroethene | 50.0 | 53.0 | 106 | -2 | 14 | 71-157 |
| Benzene | 50.0 | 55.0 | 110 | -2 | 11 | 37-151 |
| Toluene | 50.0 | 53.7 | 107 | 0 | 13 | 47-150 |
| Chlorobenzene | 50.0 | 54.0 | 108 | -2 | 13 | 37-160 |

Column to be used to flag recovery and RPD values with an asterisk

Values outside of QC limits

PD: 0 out of 5 outside limits
pike Recovery: 0 out of 10 outside limits

OMMENTS:

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V34210 SDG No.: 4096

Lab File ID: E1099 Lab Sample ID: QCBLK47901

Date Analyzed: 10/11/94 Time Analyzed: 1335

Matrix: (soil/water) WATER Level:(low/med) LOW

Instrument ID: MSE

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | TIME ANALYZED |
|---|---|---|---|---|
| 01 | 200093914 | 6342-010 | E1102 | 1613 |
| 02 | 200094018 | 6342-012 | E1104 | 1715 |
| 03 | 200094024 | 6342-013 | E1105 | 1746 |
| 04 | VSPK01 | QCSPK47901 | E1100 | 1430 |
| 05 | 200093914MS | 6342-010MS | E1106 | 1817 |
| 06 | 200093914MSD | 6342-010MSD | E1107 | 1848 |

COMMENTS:

4A
VOLATILE METHOD BLANK SUMMARY

b Name: ITAS-ST.LOUIS Contract: 500-01

b Code: ITSL Case No.: V34210 SDG No.: 4096

b File ID: E1128 Lab Sample ID: QCBLK48048

te Analyzed: 10/12/94 Time Analyzed: 2242

trix: (soil/water) WATER Level:(low/med) LOW

strument ID: MSE

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | TIME ANALYZED |
|---|---|---|---|---|
| 01 | 200093922 | 6342-011 | E1144 | 0823 |
| 02 | VSPK02 | QCSPK48048 | E1129 | 2342 |

MMENTS:

9A-LCS
VOA WATER LCS RECOVERY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V34210 SAS No.: SDG No.: 4096

EPA Sample No.: VSPK01 Level:(low/med) LOW

| COMPOUND | SPIKE ADDED (ug/L) | LCS CONCENTRATION (ug/L) | LCS % REC # | QC LIMITS REC. |
|---|---|---|---|---|
| 1,1-Dichloroethene | 50 | 49 | 98 | 1-234 |
| Trichloroethene | 50 | 54 | 107 | 71-157 |
| Benzene | 50 | 53 | 106 | 37-151 |
| Toluene | 50 | 53 | 105 | 47-150 |
| Chlorobenzene | 50 | 55 | 110 | 37-160 |

\# Column to be used to flag recovery values with an asterisk.
* Values outside of QC limits.
D Detected.
NG: Not Given. Determined by QC Charting Procedures.

9A-LCS
VOA WATER LCS RECOVERY

ab Name: ITAS-ST.LOUIS Contract: 500-01

ab Code: ITSL Case No.: V34210 SAS No.: SDG No.: 4096

PA Sample No.: VSPK02 Level:(low/med) LOW

| COMPOUND | SPIKE ADDED (ug/L) | LCS CONCENTRATION (ug/L) | LCS % REC # | QC LIMITS REC. |
|---|---|---|---|---|
| 1,1-Dichloroethene | 50 | 39 | 78 | 1-234 |
| Trichloroethene | 50 | 51 | 102 | 71-157 |
| Benzene | 50 | 50 | 100 | 37-151 |
| Toluene | 50 | 47 | 94 | 47-150 |
| Chlorobenzene | 50 | 51 | 103 | 37-160 |

\# Column to be used to flag recovery values with an asterisk.
* Values outside of QC limits.
D Detected.
G: Not Given. Determined by QC Charting Procedures.

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE

200093913M

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S34207 SAS No.: SDG No.: 4096

Matrix: (soil/water) WATER Lab Sample ID: 6342-007MS

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A6569

Level: (low/med) LOW Date Received: 10/04/94

% Moisture: not dec. dec. Date Extracted: 10/06/94

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 11/04/94

GPC Cleanup: (Y/N) Y pH: Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 10 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 12 | |
| 95-48-7 | 2-Methylphenol | 17 | |
| 106-44-5 | 4-Methylphenol | 52 | |
| 67-72-1 | Hexachloroethane | 11 | |
| 98-95-3 | Nitrobenzene | 27 | |
| 87-68-3 | Hexachlorobutadiene | 17 | |
| 88-06-2 | 2,4,6-Trichlorophenol | 21 | |
| 95-95-4 | 2,4,5-Trichlorophenol | 19 | |
| 121-14-2 | 2,4-Dinitrotoluene | 5 | J |
| 118-74-1 | Hexachlorobenzene | 5 | J |
| 87-86-5 | Pentachlorophenol | 12 | J |

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200093913MSD

b Name: ITAS-ST.LOUIS Contract: 500-01

b Code: ITSL Case No.: S34207 SAS No.: SDG No.: 4096

trix: (soil/water) WATER Lab Sample ID: 6342-007MSD

mple wt/vol: 1000 (g/mL) ML Lab File ID: A6570

vel: (low/med) LOW Date Received: 10/04/94

Moisture: not dec. dec. Date Extracted: 10/06/94

:traction: (SepF/Cont/Sonc) SEPF Date Analyzed: 11/04/94

'C Cleanup: (Y/N) Y pH: Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 4 | J |
| 106-46-7 | 1,4-Dichlorobenzene | 23 | |
| 95-48-7 | 2-Methylphenol | 33 | |
| 106-44-5 | 4-Methylphenol | 100 | E |
| 67-72-1 | Hexachloroethane | 21 | |
| 98-95-3 | Nitrobenzene | 54 | |
| 87-68-3 | Hexachlorobutadiene | 32 | |
| 88-06-2 | 2,4,6-Trichlorophenol | 46 | |
| 95-95-4 | 2,4,5-Trichlorophenol | 39 | |
| 121-14-2 | 2,4-Dinitrotoluene | 8 | J |
| 118-74-1 | Hexachlorobenzene | 13 | |
| 87-86-5 | Pentachlorophenol | 40 | J |

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE

200093913

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S34207 SAS No.: SDG No.: 4096

Matrix: (soil/water) WATER Lab Sample ID: 6342-007

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A6568

Level: (low/med) LOW Date Received: 10/04/94

% Moisture: not dec. dec. Date Extracted: 10/06/94

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 11/04/94

GPC Cleanup: (Y/N) Y pH: Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 10 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 | U |
| 95-48-7 | 2-Methylphenol | 10 | U |
| 106-44-5 | 4-Methylphenol | 30 | |
| 67-72-1 | Hexachloroethane | 10 | U |
| 98-95-3 | Nitrobenzene | 10 | U |
| 87-68-3 | Hexachlorobutadiene | 10 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 10 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 10 | U |
| 118-74-1 | Hexachlorobenzene | 10 | U |
| 87-86-5 | Pentachlorophenol | 50 | U |

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200093921

Name: ITAS-ST.LOUIS Contract: 500-01

Code: ITSL Case No.: S34207 SAS No.: SDG No.: 4096

rix: (soil/water) WATER Lab Sample ID: 6342-008

ple wt/vol: 1000 (g/mL) ML Lab File ID: A6571

el: (low/med) LOW Date Received: 10/04/94

Moisture: not dec. dec. Date Extracted: 10/06/94

traction: (SepF/Cont/Sonc) SEPF Date Analyzed: 11/04/94

C Cleanup: (Y/N) Y pH: Dilution Factor: 2.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 20 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 20 | U |
| 95-48-7 | 2-Methylphenol | 20 | U |
| 106-44-5 | 4-Methylphenol | 68 | |
| 67-72-1 | Hexachloroethane | 20 | U |
| 98-95-3 | Nitrobenzene | 20 | U |
| 87-68-3 | Hexachlorobutadiene | 20 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 20 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 20 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 20 | U |
| 118-74-1 | Hexachlorobenzene | 20 | U |
| 87-86-5 | Pentachlorophenol | 100 | U |

1B

# SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE

20009401

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S34207 SAS No.: SDG No.: 4096

Matrix: (soil/water) WATER Lab Sample ID: 6342-009

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A6572

Level: (low/med) LOW Date Received: 10/04/94

% Moisture: not dec. dec. Date Extracted: 10/06/94

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 11/04/94

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 10 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 | U |
| 95-48-7 | 2-Methylphenol | 10 | U |
| 106-44-5 | 4-Methylphenol | 10 | U |
| 67-72-1 | Hexachloroethane | 10 | U |
| 98-95-3 | Nitrobenzene | 10 | U |
| 87-68-3 | Hexachlorobutadiene | 10 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 10 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 10 | U |
| 118-74-1 | Hexachlorobenzene | 10 | U |
| 87-86-5 | Pentachlorophenol | 50 | U |

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO

SBLK01

ab Name: ITAS-ST.LOUIS Contract: 500-01

ab Code: ITSL Case No.: S34207 SAS No.: SDG No.: 4096

atrix: (soil/water) WATER Lab Sample ID: QCBLK47560

ample wt/vol: 1000 (g/mL) ML Lab File ID: A6566

evel: (low/med) LOW Date Received:

Moisture: not dec. dec. Date Extracted: 10/06/94

xtraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 11/04/94

PC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 10 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 | U |
| 95-48-7 | 2-Methylphenol | 10 | U |
| 106-44-5 | 4-Methylphenol | 10 | U |
| 67-72-1 | Hexachloroethane | 10 | U |
| 98-95-3 | Nitrobenzene | 10 | U |
| 87-68-3 | Hexachlorobutadiene | 10 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 10 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 10 | U |
| 118-74-1 | Hexachlorobenzene | 10 | U |
| 87-86-5 | Pentachlorophenol | 50 | U |

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO

SSPK01

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S34207 SAS No.: SDG No.: 4096

Matrix: (soil/water) WATER Lab Sample ID: QCSPK47560

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A6567

Level: (low/med) LOW Date Received:

% Moisture: not dec. dec. Date Extracted: 10/06/94

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 11/04/94

GPC Cleanup: (Y/N) Y pH: Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 42 | |
| 106-46-7 | 1,4-Dichlorobenzene | 52 | |
| 95-48-7 | 2-Methylphenol | 54 | |
| 106-44-5 | 4-Methylphenol | 97 | E |
| 67-72-1 | Hexachloroethane | 51 | |
| 98-95-3 | Nitrobenzene | 52 | |
| 87-68-3 | Hexachlorobutadiene | 53 | |
| 88-06-2 | 2,4,6-Trichlorophenol | 57 | |
| 95-95-4 | 2,4,5-Trichlorophenol | 53 | |
| 121-14-2 | 2,4-Dinitrotoluene | 14 | |
| 118-74-1 | Hexachlorobenzene | 18 | |
| 87-86-5 | Pentachlorophenol | 61 | |

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Name: ITAS-ST.LOUIS Contract: 500-01

Code: ITSL Case No.: S34207 SAS No.: SDG No.: 4096

| | EPA SAMPLE NO. | S1 (NBZ) # | S2 (FBP) # | S3 (TPH) # | S4 (PHL) # | S5 (2FP) # | S6 (TBP) # | OTHER | TOT OUT |
|---|---|---|---|---|---|---|---|---|---|
| 01 | 200093913 | 33 * | 39 • | 85 | 17 | 16 * | 36 | 0 | 3 |
| 02 | 200093921 | 53 | 81 | 225 • | 39 | 27 | 87 | 0 | 1 |
| 03 | 200094017 | 55 | 66 | 69 | 34 | 34 | 77 | 0 | 0 |
| 04 | SSPK01 | 72 | 76 | 72 | 80 | 65 | 74 | 0 | 0 |
| 05 | 200093913MS | 21 * | 32 * | 67 | 14 | 11 • | 32 | 0 | 3 |
| 06 | 200093913MSD | 39 | 59 | 191 • | 27 | 19 • | 55 | 0 | 2 |
| 07 | SBLK01 | 80 | 76 | 64 | 79 | 66 | 69 | 0 | 0 |

| | | QC LIMITS |
|---|---|---|
| S1 (NBZ) | = Nitrobenzene-d5 | ( 35-114) |
| S2 (FBP) | = 2-Fluorobiphenyl | ( 43-116) |
| S3 (TPH) | = Terphenyl | ( 33-141) |
| S4 (PHL) | = Phenol-d5 | ( 10-94 ) |
| S5 (2FP) | = 2-Fluorophenol | ( 21-100) |
| S6 (TBP) | = 2,4,6-Tribromophenol | ( 10-123) |

# Column to be used to flag recovery values
• Values outside of contract required QC limits
D Surrogates diluted out

# TCLP SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S34207 SDG No.: 4096

Matrix Spike - EPA Sample No.: 200093913

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE CONCENTRATION (ug/L) | MS CONCENTRATION (ug/L) | MS % REC # | QC LIMIT REC. |
|---|---|---|---|---|---|
| Pyridine | 250 | 0 | 0 | 0 * | 16-82 |
| 1,4-Dichlorobenzene | 250 | 0 | 47 | 19 * | 20-12 |
| 2-Methylphenol | 250 | 0 | 66 | 26 * | 37-12 |
| 4-Methylphenol (1) | 500 | 120 | 210 | 18 * | 26-10 |
| Hexachloroethane | 250 | 0 | 45 | 18 * | 40-11 |
| Nitrobenzene | 250 | 0 | 110 | 43 | 35-18 |
| Hexachlorobutadiene | 250 | 0 | 67 | 27 * | 24-11 |
| 2,4,6-Trichlorophenol | 250 | 0 | 85 | 34 * | 37-14 |
| 2,4,5-Trichlorophenol | 250 | 0 | 77 | 31 * | 47-11 |
| 2,4-Dinitrotoluene | 65 | 0 | 18 | 28 * | 39-13 |
| Hexachlorobenzene | 65 | 0 | 21 | 33 | D-15 |
| Pentachlorophenol | 250 | 0 | 50 | 20 | 14-17 |

| COMPOUND | SPIKE ADDED (ug/L) | MSD CONCENTRATION (ug/L) | MSD % REC # | % RPD | QC LIMITS RPD | QC LIMITS REC. |
|---|---|---|---|---|---|---|
| Pyridine | 250 | 16 | 6 * | 200 | - | 16-82 |
| 1,4-Dichlorobenzene | 250 | 92 | 37 | 64 | - | 20-12 |
| 2-Methylphenol | 250 | 130 | 53 | 68 | - | 37-12 |
| 4-Methylphenol (1) | 500 | 400 | 56 | 103 | - | 26-10 |
| Hexachloroethane | 250 | 84 | 34 * | 62 | - | 40-11 |
| Nitrobenzene | 250 | 210 | 86 | 67 | - | 35-13 |
| Hexachlorobutadiene | 250 | 130 | 51 | 62 | - | 24-11 |
| 2,4,6-Trichlorophenol | 250 | 180 | 73 | 73 | - | 37-14 |
| 2,4,5-Trichlorophenol | 250 | 160 | 62 | 67 | - | 47-11 |
| 2,4-Dinitrotoluene | 65 | 33 | 50 | 56 | - | 39-13 |
| Hexachlorobenzene | 65 | 50 | 77 | 80 | - | D-15 |
| Pentachlorophenol | 250 | 160 | 63 | 104 | - | 14-17 |

\# Column to be used to flag recovery values with an asterisk.
* Values outside of QC limits.
D Detected.
NG: Not Given. Determined by QC Charting Procedures.

(1) 4-Methylphenol and 3-Methylphenol co-elute.
Spike added is the total of equal portions of each.

Spike Recovery: 11 out of 24 outside limits

FORM III BNA

4B
SEMIVOLATILE METHOD BLANK SUMMARY

ıb Name: ITAS-ST.LOUIS Contract: 500-01

ıb Code: ITSL Case No.: S34207 SAS No.: SDG No.: 4096

ıb File ID: A6566 Lab Sample ID: QCBLK47560

ıte Extracted: 10/06/94 Extraction:(SepF/Cont/Sonc) SEPF

ıte Analyzed: 11/04/94 Time Analyzed: 1654

ıtrix: (soil/water) WATER Level:(low/med) LOW

ıstrument ID: MSA

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED |
|---|---|---|---|---|
| 01 | 200093913 | 6342-007 | A6568 | 11/04/94 |
| 02 | 200093921 | 6342-008 | A6571 | 11/04/94 |
| 03 | 200094017 | 6342-009 | A6572 | 11/04/94 |
| 04 | SSPK01 | QCSPK47560 | A6567 | 11/04/94 |
| 05 | 200093913MS | 6342-007MS | A6569 | 11/04/94 |
| 06 | 200093913MSD | 6342-007MSD | A6570 | 11/04/94 |

ɔMMENTS:

9B-LCS
BNA WATER LCS RECOVERY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S34207 SAS No.: SDG No.: 4096

EPA Sample No.: SSPK01 Level:(low/med) LOW

| COMPOUND | SPIKE ADDED (ug/L) | LCS CONCENTRATION (ug/L) | LCS % REC # | QC LIMITS REC. |
|---|---|---|---|---|
| Pyridine | 62 | 42 | 67 | 16-82 |
| 1,4-Dichlorobenzene | 62 | 52 | 83 | 20-124 |
| 2-Methylphenol | 62 | 54 | 87 | 37-126 |
| 4-Methylphenol (1) | 120 | 97 | 78 | 26-108 |
| Hexachloroethane | 62 | 51 | 81 | 40-113 |
| Nitrobenzene | 62 | 52 | 83 | 35-180 |
| Hexachlorobutadiene | 62 | 53 | 85 | 24-116 |
| 2,4,6-Trichlorophenol | 62 | 57 | 91 | 37-144 |
| 2,4,5-Trichlorophenol | 62 | 53 | 84 | 47-117 |
| 2,4-Dinitrotoluene | 16 | 14 | 88 | 39-139 |
| Hexachlorobenzene | 16 | 18 | 110 | D-152 |
| Pentachlorophenol | 62 | 61 | 98 | 14-176 |

\# Column to be used to flag recovery values with an asterisk.
* Values outside of QC limits.
D Detected.
NG: Not Given. Determined by QC Charting Procedures.

(1) 4-Methylphenol and 3-Methylphenol co-elute
Spike added reflects the total of equal portions of each.



FORM IX SV-1

1H
HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
200093912

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4096

Matrix: (soil/water) WATER Lab Sample ID: 6342-004

Sample wt/vol: 1000 (g/ml) ML Lab File ID: _____

Level: (low/med) LOW Date Sampled: 09-29-94

% Moisture: not dec. _____ dec. _____ Date Extracted: 10-05-94

Extraction: (SepF/Cont/Shak/Sox/ Sonc/SPE) SHAKER Date Analyzed: 10-20-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

| CAS NO. | Compound | | Q |
|---|---|---|---|
| 94-75-7 | 2,4-D | 12 | U |
| 93-72-1 | 2,4,5-TP | 1.7 | U |

U: Concentration of analyte is less than the value given.

FORM I HERB

1H

HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200093912MS

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4096

Matrix: (soil/water) WATER Lab Sample ID: 6342-004MS

Sample wt/vol: 1000 (g/ml) ML Lab File ID: _____

Level: (low/med) LOW Date Sampled: 09-29-94

% Moisture: not dec. _____ dec. _____ Date Extracted: 10-05-94

Extraction: (SepF/Cont/Shak/Sox/ Sonc/SPE) SHAKER Date Analyzed: 10-20-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L | Q |
|---|---|---|---|
| 94-75-7 | 2,4-D | 13 | |
| 93-72-1 | 2,4,5-TP | 1.0 | J |

U: Concentration of analyte is less than the value given.
J: Concentration of analyte is less than detection limit, but peak is present.

FORM I HERB

1H
HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
200093912MSD

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4096

Matrix: (soil/water) WATER Lab Sample ID: 6342-004MSD

Sample wt/vol: 1000 (g/ml) ML Lab File ID: _____

Level: (low/med) LOW Date Sampled: 09-29-94

% Moisture: not dec. _____ dec. _____ Date Extracted: 10-05-94

Extraction: (SepF/Cont/Shak/Sox/ Sonc/SPE) SHAKER Date Analyzed: 10-20-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

| CAS NO. | Compound | | Q |
|---|---|---|---|
| 94-75-7 | 2,4-D | 14 | |
| 93-72-1 | 2,4,5-TP | 1.3 | J |

U: Concentration of analyte is less than the value given.
J: Concentration of analyte is less than detection limit, but peak is present.

FORM I HERB

1H

HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200093920

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4096

Matrix: (soil/water) WATER Lab Sample ID: 6342-005

Sample wt/vol: 1000 (g/ml) ML Lab File ID: _____

Level: (low/med) LOW Date Sampled: 09-29-94

% Moisture: not dec._____ dec._____ Date Extracted: 10-05-94

Extraction: (SepF/Cont/Shak/Sox/ Sonc/SPE) SHAKER Date Analyzed: 10-20-94

GPC Cleanup: (Y/N) N pH:_____ Dilution Factor: 1

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L | Q |
|---|---|---|---|
| 94-75-7 | 2,4-D | 12 | U |
| 93-72-1 | 2,4,5-TP | 1.7 | U |

U: Concentration of analyte is less than the value given.

FORM I HERB

1H
HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
200094016

ab Name: ITAS-St. Louis Contract: 500.01

ab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4096

atrix: (soil/water) WATER Lab Sample ID: 6342-006

ample wt/vol: 1000 (g/ml) ML Lab File ID: _____

evel: (low/med) LOW Date Sampled: 09-29-94

Moisture: not dec. _____ dec. _____ Date Extracted: 10-05-94

xtraction: (SepF/Cont/Shak/Sox/ Sonc/SPE) SHAKER Date Analyzed: 10-20-94

PC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L | Q |
|---|---|---|---|
| 94-75-7 | 2,4-D | .12 | U |
| 93-72-1 | 2,4,5-TP | 1.7 | U |

: Concentration of analyte is less than the value given.

FORM I HERB

1H

HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HBLK01

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4096

Matrix: (soil/water) WATER Lab Sample ID: BLK 47368

Sample wt/vol: 1000 (g/ml) ML Lab File ID: _____

Level: (low/med) LOW Date Sampled: _____

% Moisture: not dec. _____ dec. _____ Date Extracted: 10-05-94

Extraction: (SepF/Cont/Shak/Sox/ Sonc/SPE) SHAKER Date Analyzed: 10-20-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

| CAS NO. | Compound | | Q |
|---|---|---|---|
| 94-75-7 | 2,4-D | 12 | U |
| 93-72-1 | 2,4,5-TP | 1.7 | U |

U: Concentration of analyte is less than the value given.

FORM I HERB

1H
HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HSPK01

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4096

Matrix: (soil/water) WATER Lab Sample ID: SPK 47368

Sample wt/vol: 1000 (g/ml) ML Lab File ID: _____

Level: (low/med) LOW Date Sampled: _____

% Moisture: not dec. _____ dec. _____ Date Extracted: 10-05-94

Extraction: (SepF/Cont/Shak/Sox/ Sonc/SPE) SHAKER Date Analyzed: 10-20-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

| CAS NO. | Compound | | Q |
|---|---|---|---|
| 94-75-7 | 2,4-D | .14 | |
| 93-72-1 | 2,4,5-TP | 1.0 | J |

U: Concentration of analyte is less than the value given.
J: Concentration of analyte is less than detection limit, but peak is present.

FORM I HERB

2L
WATER HERBICIDE SURROGATE RECOVERY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4096

| | EPA SAMPLE NO. | S1 (24DCPA) # | S2 (OTHER) # |
|---|---|---|---|
| 01 | HBLK01 | 86 | |
| 02 | HSPK01 | 94 | |
| 03 | 200093912 | 65 | |
| 04 | 200093920 | 58 | |
| 05 | 200094016 | 98 | |
| 06 | 200093912MS | 58 | |
| 07 | 200093912MSD | 62 | |
| 08 | | | |
| 09 | | | |
| 10 | | | |
| 11 | | | |
| 12 | | | |
| 13 | | | |
| 14 | | | |
| 15 | | | |
| 16 | | | |
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| 22 | | | |
| 23 | | | |
| 24 | | | |
| 25 | | | |
| 26 | | | |
| 27 | | | |
| 28 | | | |
| 29 | | | |
| 30 | | | |

ADVISORY
QC LIMITS
34 - 149

S1 (24DCPA) = 2,4-Dichlorophenylacetic acid

# Column to be used to flag recovery values

* Values outside of QC limits

D Surrogates diluted out

 FORM II HERB-2

3L
WATER HERBICIDES SPIKE BLANK (LCS) RECOVERY

ab Name: ITAS-St. Louis Contract: 500.01

ab Code: ITSL Case No.: SAS No.: SDG No.: 4096

pike ID: SPK 47368

| COMPOUND | SPIKE ADDED (ug/Kg) | SPIKE CONCENTRATION (ug/Kg) | SPK % REC # | QC LIMITS REC |
|---|---|---|---|---|
| 2,4-D | 1.0 | 14 | 136 | 33-194 |
| 2,4,5-TP | 1.0 | 1.0 | 95 | 57-164 |
| | | | | |
| | | | | |

# Column to be used to flag recovery values with an asterisk

• Values outside of QC limits

COMMENTS: Permanent QC Limits are not established for Herbicides. QC Limits are established through control charting.

FORM III HERB-2

3Q

# WATER HERBICIDES MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4096

Matrix Spike - EPA Sample No.: 200093912

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE CONCENTRATION (ug/L) | MS CONCENTRATION (ug/L) | MS % REC # | QC LIMITS %REC |
|---|---|---|---|---|---|
| 2,4-D | 10 | 0 | 13 | 128 | 33-194 |
| 2,4,5-TP | 1.0 | 0 | 1.0 | 100 | 57-164 |

| COMPOUND | SPIKE ADDED (ug/L) | MSD CONCENTRATION (ug/L) | MS % REC # | % RPD # | QC LIMITS %REC | %RPD |
|---|---|---|---|---|---|---|
| 2,4-D | 10 | 14 | 146 | 13 | 33-194 | ND |
| 2,4,5-TP | 1.0 | 1.3 | 132 | 27 | 57-164 | ND |

# Column to be used to flag recovery values with an asterisk

• Values outside of QC limits

ND Not determined

COMMENTS: Permanent QC Limits are not established for Herbicides. QC Limits for % Recovery are established through control charting.

FORM III HERB-4

4E

# HERBICIDE METHOD BLANK SUMMARY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4096

Lab Sample ID: BLK 47368 Lab File ID:

Matrix: (soil/water) WATER Level (low/med) LOW

Date Extracted: 10-05-94 Extraction: (SepF/Cont/Sonc/ Shak/Sox/SPE) SHAKER

Date Analyzed (1): 10-20-94 Date Analyzed (2):

Time Analyzed (1): 08:20 Time Analyzed (2):

Instrument ID (1): GCE Instrument ID (2):

GC Column ID (1): DB-5MS GC Column ID (2):

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, LCS, MS AND MSD:

| | EPA SAMPLE NO. | LAB SAMPLE ID | DATE ANALYZED 1 | DATE ANALYZED 2 |
|---|---|---|---|---|
| 01 | HSPK01 | SPK 47368 | 10-20-94 | |
| 02 | 200093938 | 6342-004 | 10-20-94 | |
| 03 | 200093920 | 6342-005 | 10-20-94 | |
| 04 | 200094016 | 6342-006 | 10-20-94 | |
| 05 | 200093912MS | 6342-004MS | 10-20-94 | |
| 06 | 200093912MSD | 6342-004MSD | 10-20-94 | |
| 07 | | | | |
| 08 | | | | |
| 09 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
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| 23 | | | | |
| 24 | | | | |
| 25 | | | | |
| 26 | | | | |

COMMENTS:

page 1 of 1

FORM IV HERB

6E

# HERBICIDE ORGANICS INITIAL CALIBRATION DATA

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4096

Instrument ID: GCE GC Column ID: DB-5MS

Calibration Date(s): 10-12-94 to 10-12-94

| COMPOUD | CALIBRATION FACTOR LEVEL #1 | CALIBRATION FACTOR LEVEL #2 | CALIBRATION FACTOR LEVEL #3 | CALIBRATION FACTOR LEVEL #4 | CALIBRATION FACTOR LEVEL #5 | CALIBRATION FACTOR LEVEL #6 |
|---|---|---|---|---|---|---|
| 2,4-DCPA | 1331000 | 1159700 | | 1091360 | 1003430 | 881575 |
| 2,4-D | | 1347800 | | 1285040 | 1209010 | 1096995 |
| 2,4,5-TP | 4180000 | 5122000 | | 5209400 | 5368800 | 5126350 |

| COMPOUND | CALIBRATION FACTOR LEVEL #7 | CALIBRATION FACTOR LEVEL #8 | CALIBRATION FACTOR LEVEL #9 | AVERAGE ESTER-CALIB FACTOR | AVERAGE ACID-CALIB. FACTOR | %RSD (<20%) |
|---|---|---|---|---|---|---|
| 2,4-DCPA | 795953 | | | 104[illegible]6 | 1115210 | [illegible]9 |
| 2,4-D | 1014175 | | | 1190604 | 1266600 | 11 |
| 2,4,5-TP | 5128025 | | | 5022429 | 5281208 | 8 |

Under AVERAGE CALIBRATION FACTOR, enter the average of the calibration factors. A minimum of five calibration levels must be used.

The %RSD must be less than 20% for the average calibration factor to be used. If the %RSD is ≥ 20%, a point-to-point calibration must be used. In this case, enter "Pt-to-Pt" under AVERAGE CALIBRATION FACTOR instead of the average calibration factor.

FORM VI HERB

8F

# HERBICIDE ANALYTICAL SEQUENCE SUMMARY

007211

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4096

Instrument ID: GCE GC Column ID: DB-5MS

Dates of Analyses: 10-20-94 to 10-20-94

| | EPA SAMPLE NO. | LAB SAMPLE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|
| 01 | HERB4 | HERB4 | 10-20-94 | 04:48 |
| 02 | ZZZZZ | ZZZZZ | 10-20-94 | 05:07 |
| 03 | ZZZZZ | ZZZZZ | 10-20-94 | 05:26 |
| 04 | ZZZZZ | ZZZZZ | 10-20-94 | 06:05 |
| 05 | ZZZZZ | ZZZZZ | 10-20-94 | 06:24 |
| 06 | ZZZZZ | ZZZZZ | 10-20-94 | 06:44 |
| 07 | ZZZZZ | ZZZZZ | 10-20-94 | 07:03 |
| 08 | ZZZZZ | ZZZZZ | 10-20-94 | 07:22 |
| 09 | ZZZZZ | ZZZZZ | 10-20-94 | 07:42 |
| 10 | HBLK01 | BLK 47368 | 10-20-94 | 08:20 |
| 11 | HSPK01 | SPK 47368 | 10-20-94 | 08:40 |
| 12 | HERB4 | HERB4 | 10-20-94 | 10:02 |
| 13 | ZZZZZ | ZZZZZ | 10-20-94 | 10:21 |
| 14 | ZZZZZ | ZZZZZ | 10-20-94 | 10:40 |
| 15 | ZZZZZ | ZZZZZ | 10-20-94 | 10:59 |
| 16 | ZZZZZ | ZZZZZ | 10-20-94 | 11:19 |
| 17 | ZZZZZ | ZZZZZ | 10-20-94 | 11:38 |
| 18 | ZZZZZ | ZZZZZ | 10-20-94 | 11:57 |
| 19 | ZZZZZ | ZZZZZ | 10-20-94 | 12:17 |
| 20 | ZZZZZ | ZZZZZ | 10-20-94 | 12:36 |
| 21 | ZZZZZ | ZZZZZ | 10-20-94 | 12:55 |
| 22 | ZZZZZ | ZZZZZ | 10-20-94 | 13:14 |
| 23 | HERB4 | HERB4 | 10-20-94 | 13:53 |
| 24 | ZZZZZ | ZZZZZ | 10-20-94 | 14:12 |
| 25 | ZZZZZ | ZZZZZ | 10-20-94 | 14:32 |
| 26 | ZZZZZ | ZZZZZ | 10-20-94 | 14:51 |
| 27 | ZZZZZ | ZZZZZ | 10-20-94 | 15:10 |
| 28 | ZZZZZ | ZZZZZ | 10-20-94 | 15:30 |
| 29 | ZZZZZ | ZZZZZ | 10-20-94 | 15:49 |
| 30 | ZZZZZ | ZZZZZ | 10-20-94 | 16:08 |
| 31 | ZZZZZ | ZZZZZ | 10-20-94 | 16:27 |
| 32 | ZZZZZ | ZZZZZ | 10-20-94 | 17:06 |
| 34 | ZZZZZ | ZZZZZ | 10-20-94 | 17:25 |
| 35 | HERB4 | HERB4 | 10-20-94 | 18:04 |
| 36 | ZZZZZ | ZZZZZ | 10-20-94 | 18:23 |
| 37 | ZZZZZ | ZZZZZ | 10-20-94 | 18:42 |
| 38 | ZZZZZ | ZZZZZ | 10-20-94 | 19:01 |
| 39 | ZZZZZ | ZZZZZ | 10-20-94 | 19:20 |
| 40 | 200093912 | 6342-004 | 10-20-94 | 19:40 |
| 41 | 200093920 | 6342-005 | 10-20-94 | 19:59 |
| 42 | 200094016 | 6342-006 | 10-20-94 | 20:18 |
| 43 | 200093912MS | 6342-004MS | 10-20-94 | 20:37 |
| 44 | 200093912MSD | 6342-004MSD | 10-20-94 | 20:57 |
| 45 | ZZZZZ | ZZZZZ | 10-20-94 | 21:35 |
| 46 | HERB4 | HERB4 | 10-20-94 | 21:54 |



FORM VIII HERB

9B

# HERBICIDE STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: ____ SDG No.: 4096

Instrument ID: GCE GC Column ID: DB-5MS

| | |
|---|---|
| DATE(S) OF ANALYSIS FROM: 10-12-94 | DATE OF ANALYSIS 10-20-94 |
| TO: 10-12-94 | TIME OF ANALYSIS 04:48 |
| TIME(S) OF ANALYSIS FROM: 00:47 | EPA SAMPLE NO. (STANDARD) HERB4 |
| TO: 03:14 | |

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | AVERAGE CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
|---|---|---|---|---|---|---|---|---|
| 2,4-DCPA | 6.47 | 6.43 | 6.51 | 1043836 | 6.47 | 1138940 | Y | 9 |
| 2,4-D | 7.99 | 7.93 | 8.05 | 1190604 | 8.00 | 1358640 | Y | 14 |
| 2,4,5-TP | 9.93 | 9.85 | 10.01 | 5022429 | 9.94 | 5398600 | Y | 7 |

Under AVERAGE CALIBRATION FACTOR, enter the average calibration factor from the five-point calibration curve (FORM VI) if the average calibration factor was used for calculations. If point-tp-point calculations were performed, enter "Pt-to-Pt".

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 15% for quantitation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 15% criteria.



FORM IX HERB

9B
HERBICIDE STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4096

Instrument ID: GCE GC Column ID: DB-5MS

DATE(S) OF ANALYSIS FROM: 10-12-94 TO: 10-12-94
TIME(S) OF ANALYSIS FROM: 00:47 TO: 03:14

DATE OF ANALYSIS 10-20-94
TIME OF ANALYSIS 10:02
EPA SAMPLE NO. (STANDARD) HERB4

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | AVERAGE CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
|---|---|---|---|---|---|---|---|---|
| 2,4-DCPA | 6.47 | 6.43 | 6.51 | 1043836 | 6.48 | 947260 | Y | 9 |
| 2,4-D | 7.99 | 7.93 | 8.05 | 1190604 | 7.96 | 1173780 | Y | 1 |
| 2,4,5-TP | 9.93 | 9.85 | 10.01 | 5022429 | 9.92 | 4635000 | Y | 8 |

Under AVERAGE CALIBRATION FACTOR, enter the average calibration factor from the five-point calibration curve (FORM VI) if the average calibration factor was used for calculations. If point-tp-point calculations were performed, enter "Pt-to-Pt".

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 15% for quantitation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 15% criteria.

9B

# HERBICIDE STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: ____ SDG No.: 4096

Instrument ID: GCE GC Column ID: DB-5MS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DATE(S) OF ANALYSIS FROM: 10-12-94 TO: 10-12-94 | | | | DATE OF ANALYSIS 10-20-94 | | | |
| TIME(S) OF ANALYSIS FROM: 00:47 TO: 03:14 | | | | TIME OF ANALYSIS 13:53 | | | |
| | | | | EPA SAMPLE NO. (STANDARD) HERB4 | | | |
| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | AVERAGE CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
| 2,4-DCPA | 6.47 | 6.43 | 6.51 | 1043836 | 6.49 | 1091320 | Y | 4 |
| 2,4-D | 7.99 | 7.93 | 8.05 | 1190604 | 7.99 | 1363700 | Y | 14 |
| 2,4,5-TP | 9.93 | 9.85 | 10.01 | 5022429 | 9.95 | 5187400 | Y | 3 |

Under AVERAGE CALIBRATION FACTOR, enter the average calibration factor from the five-point calibration curve (FORM VI) if the average calibration factor was used for calculations. If point-tp-point calculations were performed, enter "Pt-to-Pt".

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 15% for quantitation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 15% criteria.

9B
HERBICIDE STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4096

Instrument ID: GCE GC Column ID: DB-5MS

DATE(S) OF ANALYSIS FROM: 10-12-94 TO: 10-12-94
TIME(S) OF ANALYSIS FROM: 00:47 TO: 03:14

DATE OF ANALYSIS 10-20-94
TIME OF ANALYSIS 18:04
EPA SAMPLE NO. (STANDARD) HERB4

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | AVERAGE CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
|---|---|---|---|---|---|---|---|---|
| 2,4-DCPA | 6.47 | 6.43 | 6.51 | 1043836 | 6.48 | 1118460 | Y | 7 |
| 2,4-D | 7.99 | 7.93 | 8.05 | 1190604 | 7.97 | 1316340 | Y | 10 |
| 2,4,5-TP | 9.93 | 9.85 | 10.01 | 5022429 | 9.92 | 5363200 | Y | 7 |

Under AVERAGE CALIBRATION FACTOR, enter the average calibration factor from the five-point calibration curve (FORM VI) if the average calibration factor was used for calculations. If point-tp-point calculations were performed, enter "Pt-to-Pt".

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 15% for quantitation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 15% criteria.



FORM IX HERB

9B
HERBICIDE STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4096

Instrument ID: GCE GC Column ID: DB-5MS

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | DATE(S) OF ANALYSIS FROM: 10-12-94 TO: 10-12-94<br>TIME(S) OF ANALYSIS FROM: 00:47 TO: 03:14 | | | | DATE OF ANALYSIS 10-20-94<br>TIME OF ANALYSIS 21:54<br>EPA SAMPLE NO. (STANDARD) HERB4 | | | |
| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | AVERAGE CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
| 2,4-DCPA | 6.47 | 6.43 | 6.51 | 1043836 | 6.48 | 1018420 | N | 2 |
| 2,4-D | 7.99 | 7.93 | 8.05 | 1190604 | 7.97 | 1290080 | N | 8 |
| 2,4,5-TP | 9.93 | 9.85 | 10.01 | 5022429 | 9.92 | 5002200 | N | 0 |

Under AVERAGE CALIBRATION FACTOR, enter the average calibration factor from the five-point calibration curve (FORM VI) if the average calibration factor was used for calculations. If point-tp-point calculations were performed, enter "Pt-to-Pt".

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 15% for quantitation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 15% criteria.

11C
HERBICIDE CALIBRATION STANDARD CONCENTRATIONS

ab Name: ITAS-St. Louis Contract: 500.01

ab Code: ITSL Case No.: SAS No.: SDG No.: 4096

nstrument ID: GCE GC Column ID: DB-5MS

alibration Date(s): 10-12-94 to 10-12-94

| ESTER FORM COMPOUD | CONCENTRATION (ng/ml) LEVEL #1 | CONCENTRATION (ng/ml) LEVEL #2 | CONCENTRATION (ng/ml) LEVEL #3 | CONCENTRATION (ng/ml) LEVEL #4 | CONCENTRATION (ng/ml) LEVEL #5 |
|---|---|---|---|---|---|
| 2,4-DCPA | 2.0 | 10.0 | 20.0 | 50.0 | 100.0 |
| 2,4-D | 2.0 | 10.0 | 20.0 | 50.0 | 100.0 |
| 2,4,5-TP | 0.2 | 1.0 | 2.0 | 5.0 | 10.0 |

| COMPOUD | CONCENTRATION (ng/ml) LEVEL #6 | CONCENTRATION (ng/ml) LEVEL #7 | CONCENTRATION (ng/ml) LEVEL #8 | CONCENTRATION (ng/ml) LEVEL #9 | CONCENTRATION (ng/ml) LEVEL #10 |
|---|---|---|---|---|---|
| 2,4-DCPA | 200.0 | 400.0 | | | |
| 2,4-D | 200.0 | 400.0 | | | |
| 2,4,5-TP | 20.0 | 40.0 | | | |

FORM XI HERB

1D

# PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200093913

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4096

Matrix: (soil/water) WATER Lab Sample ID: 6342-007

Sample wt/vol: 1000 (g/ml) ML Lab File ID: _____

Level: (low/med) LOW Date Sampled : 09-29-94

% Moisture: not dec. _____ dec. _____ Date Extracted: 10-12-94

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10-27-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

| CAS NO. | Compound | | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | 1.0 | U |
| 11141-16-5 | Aroclor-1232 | 1.0 | U |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | 1.0 | U |
| 12672-29-6 | Aroclor-1248 | | SD |
| 11097-69-1 | Aroclor-1254 | | SD |
| 11096-82-5 | Aroclor-1260 | 7.0 | |

SD: See dilution.

FORM I PEST

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
200093913DL

ab Name: ITAS-St. Louis Contract: 500-01

ab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4096

atrix: (soil/water) WATER Lab Sample ID: 6342-007DL

ample wt/vol: 1000 (g/ml) ML Lab File ID: _____

evel: (low/med) LOW Date Sampled : 09-29-94

Moisture: not dec. _____ dec. _____ Date Extracted: 10-12-94

xtraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10-27-94

PC Cleanup: (Y/N) N pH: _____ Dilution Factor: 10

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | | SS |
| 11141-16-5 | Aroclor-1232 | | SS |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | | SS |
| 12672-29-6 | Aroclor-1248 | 22 | |
| 11097-69-1 | Aroclor-1254 | 25 | |
| 11096-82-5 | Aroclor-1260 | | SS |

S: See undiluted run.

FORM I PEST

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
200093921

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4096

Matrix: (soil/water) WATER Lab Sample ID: 6342-008

Sample wt/vol: 1000 (g/ml) ML Lab File ID: _____

Level: (low/med) LOW Date Sampled : 09-29-94

% Moisture: not dec. _____ dec. _____ Date Extracted: 10-12-94

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10-27-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | 1.0 | U |
| 11141-16-5 | Aroclor-1232 | 1.0 | U |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | 1.0 | U |
| 12672-29-6 | Aroclor-1248 | | SD |
| 11097-69-1 | Aroclor-1254 | | SD |
| 11096-82-5 | Aroclor-1260 | 3.6 | |

SD: See dilution.

FORM I PEST

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
200093921MS

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4096

Matrix: (soil/water) WATER Lab Sample ID: 6342-008MS

Sample wt/vol: 1000 (g/ml) ML Lab File ID: _____

Level: (low/med) LOW Date Sampled : 09-29-94

% Moisture: not dec. _____ dec. _____ Date Extracted: 10-12-94

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10-27-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | 1.0 | U |
| 11141-16-5 | Aroclor-1232 | 1.0 | U |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | 1.0 | U |
| 12672-29-6 | Aroclor-1248 | | SD |
| 11097-69-1 | Aroclor-1254 | | SD |
| 11096-82-5 | Aroclor-1260 | 6.8 | |

SD: See dilution.

FORM I PEST

1D

# PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200093921MSD

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4096

Matrix: (soil/water) WATER Lab Sample ID: 6342-008MSD

Sample wt/vol: 1000 (g/ml) ML Lab File ID: _____

Level: (low/med) LOW Date Sampled : 09-29-94

% Moisture: not dec. _____ dec. _____ Date Extracted: 10-12-94

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10-27-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | 1.0 | U |
| 11141-16-5 | Aroclor-1232 | 1.0 | U |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | 1.0 | U |
| 12672-29-6 | Aroclor-1248 | | SD |
| 11097-69-1 | Aroclor-1254 | | SD |
| 11096-82-5 | Aroclor-1260 | 7.9 | |

SD: See dilution.

FORM I PEST

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
200093921

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4096

Matrix: (soil/water) WATER Lab Sample ID: 6342-008

Sample wt/vol: 1000 (g/ml) ML Lab File ID: _____

Level: (low/med) LOW Date Sampled : 09-29-94

% Moisture: not dec. _____ dec. _____ Date Extracted: 10-12-94

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10-27-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 10

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

| CAS NO. | Compound | | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | | SS |
| 11141-16-5 | Aroclor-1232 | | SS |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | | SS |
| 12672-29-6 | Aroclor-1248 | 13 | |
| 11097-69-1 | Aroclor-1254 | 15 | |
| 11096-82-5 | Aroclor-1260 | | SS |

SS: See undiluted run.

FORM I PEST

1D

# PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200093921MS

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4096

Matrix: (soil/water) WATER Lab Sample ID: 6342-008MS

Sample wt/vol: 1000 (g/ml) ML Lab File ID: _____

Level: (low/med) LOW Date Sampled : 09-29-94

% Moisture: not dec. _____ dec. _____ Date Extracted: 10-12-94

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10-27-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | | SS |
| 11141-16-5 | Aroclor-1232 | | SS |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | | SS |
| 12672-29-6 | Aroclor-1248 | 20 | |
| 11097-69-1 | Aroclor-1254 | 24 | |
| 11096-82-5 | Aroclor-1260 | | SS |

FORM I PEST

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
200093921MSD

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4096

Matrix: (soil/water) WATER Lab Sample ID: 6342-007MSD

Sample wt/vol: 1000 (g/ml) ML Lab File ID: _____

Level: (low/med) LOW Date Sampled : 09-29-94

% Moisture: not dec. _____ dec. _____ Date Extracted: 10-12-94

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10-27-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 10

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | | SS |
| 11141-16-5 | Aroclor-1232 | | SS |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | | SS |
| 12672-29-6 | Aroclor-1248 | 22 | |
| 11097-69-1 | Aroclor-1254 | 28 | |
| 11096-82-5 | Aroclor-1260 | | SS |

FORM I PEST

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200094017

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4096

Matrix: (soil/water) WATER Lab Sample ID: 6342-009

Sample wt/vol: 1000 (g/ml) ML Lab File ID: _____

Level: (low/med) LOW Date Sampled : 09-29-94

% Moisture: not dec. _____ dec. _____ Date Extracted: 10-12-94

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10-27-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | 1.0 | U |
| 11141-16-5 | Aroclor-1232 | 1.0 | U |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | 1.0 | U |
| 12672-29-6 | Aroclor-1248 | 1.0 | U |
| 11097-69-1 | Aroclor-1254 | 1.0 | U |
| 11096-82-5 | Aroclor-1260 | 1.0 | U |

FORM I PEST

2E
WATER PCB SURROGATE RECOVERY

ab Name: ITAS-St. Louis Contract: 500-01

ab Code: ITSL Case No.: SAS No.: SDG No.: 4096

evel: (low/med) LOW

| | EPA SAMPLE NO. | S1 (DBC) # | S2 (TCMX) # |
|---|---|---|---|
| 01 | PBLK01 | | 87 |
| 02 | PSPK01 | | 91 |
| 03 | 200093913 | | 167 * |
| 04 | 200093921 | | 169 * |
| 05 | 200093921MS | | 160 * |
| 06 | 200093921MSD | | 177 * |
| 07 | 200094017 | | 72 |
| 08 | 200093913DL | | 150 * |
| 09 | 200093921DL | | 188 * |
| 10 | 200093921MSDL | | 161 * |
| 11 | 200093921MSDDL | | 188 * |
| 12 | | | |
| 13 | | | |
| 14 | | | |
| 15 | | | |
| 16 | | | |
| 17 | | | |
| 18 | | | |
| 19 | | | |
| 20 | | | |
| 21 | | | |
| 22 | | | |
| 23 | | | |
| 24 | | | |
| 25 | | | |
| 26 | | | |
| 27 | | | |
| 28 | | | |
| 29 | | | |
| 30 | | | |

ADVISORY QC LIMITS

S1 (DBC) = Dibutylchlorendate
S2 (TCMX) = Tetrachlorom-m-xylene (38-144)

# Column to be used to flag recovery values

* Values outside of QC limits

D Surrogates diluted out

3E
WATER PCB SPIKE BLANK(LCS) RECOVERY

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4096

Spike Blank No.: SPK 48041

| COMPOUND | SPIKE ADDED (ug/l) | SPIKE CONCENTRATION (ug/l) | SPK % REC # | QC LIMITS REC. |
|---|---|---|---|---|
| Aroclor-1254 | 5.0 | 6.4 | 129 | 29-131 |
| | | | | |
| | | | | |

# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

ND: not determined

Spike Recovery: 0 out of 1 outside limits

COMMENTS:

FORM III PEST-2

3E

WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ab Name: ITAS-St. Louis Contract: 500-01

ab Code: ITSL Case No.: SAS No.: SDG No.: 4096

atrix Spike - EPA Sample No.: 200093921 Level: (low/med) LOW

| COMPOUND | SPIKE ADDED (ug/l) | SAMPLE CONCENTRATION (ug/l) | MS CONCENTRATION (ug/l) | MS % REC # | QC LIMITS REC. |
|---|---|---|---|---|---|
| Aroclor-1254 | 5.0 | 15 | 24 | 175 * | 29-131 |

| COMPOUND | SPIKE ADDED (ug/l) | MSD CONCENTRATION (ug/l) | MSD % REC # | % RPD | QC LIMITS RPD | QC LIMITS REC. |
|---|---|---|---|---|---|---|
| Aroclor 1254 | 5.0 | 28 | 266 * | 41 | | 29-131 |

# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: _____ out of _____ outside limits
Spike Recovery: 2 out of 2 outside limits

COMMENTS:

FORM III PEST-2

4C

# PCB METHOD BLANK SUMMARY

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: _____ SAS No.: ____ SDG No.: 4096

Lab Sample ID: BLK 48041 Lab File ID: _____

Matrix: (soil/water) WATER Level (low/med) LOW

Date Extracted: 10-12-94 Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed (1): 10-27-94 Date Analyzed (2): _____

Time Analyzed (1): 04:31 Time Analyzed (2): _____

Instrument ID (1): GC A Instrument ID (2): _____

GC Column ID (1): DB-608 GC Column ID (2): _____

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

| | EPA SAMPLE NO. | LAB SAMPLE ID | DATE ANALYZED 1 | DATE ANALYZED 2 |
|---|---|---|---|---|
| 01 | PSPK01 | SPK48041 | 10-27-94 | |
| 02 | 200093913 | 6342-007 | 10-27-94 | |
| 03 | 200093921 | 6342-008 | 10-27-94 | |
| 04 | 200093921MS | 6342-008MS | 10-27-94 | |
| 05 | 200093921MSD | 6342-008MSD | 10-27-94 | |
| 06 | 200094017 | 6342-009 | 10-27-94 | |
| 07 | 200093913DL | 6342-007DL | 10-27-94 | |
| 08 | 200093921DL | 6342-008DL | 10-27-94 | |
| 09 | 200093921MSDL | 6342-008MSDL | 10-27-94 | |
| 10 | 200093921MSDDL | 6342-008MSDDL | 10-27-94 | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |
| 15 | | | | |
| 16 | | | | |
| 17 | | | | |
| 18 | | | | |
| 19 | | | | |
| 20 | | | | |
| 21 | | | | |
| 22 | | | | |
| 23 | | | | |

COMMENTS: _____

6F

# PCB ORGANICS INITIAL CALIBRATION DATA

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: _____ SAS No.: ____ SDG No.: 4096

Instrument ID: GCA GC Column ID: DB-608

Calibration Date(s): 10-20-94 to 10-20-94
_____ to _____

| COMPOUND | CALIBRAT. FACTOR LEVEL #1 | CALIBRAT. FACTOR LEVEL #2 | CALIBRAT. FACTOR LEVEL #3 | CALIBRAT. FACTOR LEVEL #4 | CALIBRAT. FACTOR LEVEL #5 | CALIBRAT. FACTOR LEVEL #6 |
|---|---|---|---|---|---|---|
| AR 1221 | 289200 | 275050 | 269844 | 243650 | 228096 | 222049 |
| AR 1232 | 628620 | 577160 | 509540 | 459942 | 430340 | 396172 |
| AR 1242/1016 | 966640 | 934460 | 829452 | 714596 | 662548 | 628998 |
| AR 1248 | 909660 | 889560 | 846892 | 753982 | 716565 | 704451 |
| AR 1254 | 591280 | 615660 | 579028 | 520932 | 487309 | 450929 |
| AR 1260 | 848060 | 882310 | 842456 | 736368 | 703577 | 669359 |
| TCMX | 6480000 | 6661000 | 6161200 | 5395900 | 5211950 | 4977933 |
| DBC | 3719100 | 3496950 | 3016280 | 2477960 | 2212010 | 2007797 |

| COMPOUND | CALIBRAT. FACTOR LEVEL #7 | CALIBRAT. FACTOR LEVEL #8 | CALIBRAT. FACTOR LEVEL #9 | CALIBRAT. FACTOR LEVEL #10 | AVERAGE CALBRAT. FACTOR | %RSD (<20%) |
|---|---|---|---|---|---|---|
| AR 1221 | | | | | 254648 | 11 |
| AR 1232 | | | | | 500296 | 18 |
| AR 1242/1016 | | | | | 789449 | 18 |
| AR 1248 | | | | | 803518 | 11 |
| AR 1254 | | | | | 540856 | 12 |
| AR 1260 | | | | | 780355 | 11 |
| TCMX | | | | | 5814664 | 12 |
| DBC | | | | | PT-TO-PT | 25 |

Under AVERAGE CALIBRATION FACTOR, enter the average of the calibration factors.

The %RSD must be less than 20% for the average calibration factor to be used. If the %RSD is ≥ 20%, a point-to-point calibration must be used. In this case, enter "Pt-to-Pt" under AVERAGE CALIBRATION FACTOR instead of the average calibration factor.

FORM VI PCB-1

# PESTICIDE/PCB STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4096

Instrument ID: GC A GC Column ID: DB-608

DATE(S) OF ANALYSIS FROM: 10-20-94 TO: 10-20-94
TIME(S) OF ANALYSIS FROM: 00:47 TO: 05:24

DATE OF ANALYSIS 10-26-94
TIME OF ANALYSIS VARIES
EPA SAMPLE NO. (STANDARD) DAILY CAL

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
|---|---|---|---|---|---|---|---|---|
| AR 1221 | 1.81 | 1.75 | 1.87 | 254648 | 1.81 | 240672 | Y | 5 |
| AR 1232 | 2.61 | 2.53 | 2.69 | 500296 | 2.61 | 468036 | Y | 6 |
| AR 1242/1016 | 2.61 | 2.55 | 2.66 | 789449 | 2.61 | 708025 | Y | 10 |
| AR 1248 | 3.62 | 3.56 | 3.68 | 803518 | 3.62 | 746956 | Y | 7 |
| AR 1254 | 4.79 | 4.73 | 4.85 | 540856 | 4.79 | 513918 | Y | 5 |
| AR 1260 | 6.84 | 6.77 | 6.93 | 780355 | 6.84 | 678248 | Y | 13 |
| DBC | | | | | | | | |
| TCMX | 1.52 | 1.50 | 1.54 | 5814664 | 1.52 | 5554200 | Y | 5 |

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 20.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 20.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.

9

# PESTICIDE/PCB STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4096

Instrument ID: GC-A GC Column ID: DB-608

DATE(S) OF ANALYSIS FROM: 10-20-94 TO: 10-20-94
TIME(S) OF ANALYSIS FROM: 00:47 TO: 05:24

DATE OF ANALYSIS 10-27-94
TIME OF ANALYSIS 04:16
EPA SAMPLE NO. (STANDARD) AR3254

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
|---|---|---|---|---|---|---|---|---|
| AR 1221 | 1.81 | 1.75 | 1.87 | 254648 | | | | |
| AR 1232 | 2.61 | 2.53 | 2.69 | 500296 | 2.61 | 523415 | Y | 5 |
| AR 1242/1016 | 2.61 | 2.55 | 2.66 | 789449 | | | | |
| AR 1248 | 3.62 | 3.56 | 3.68 | 803518 | | | | |
| AR 1254 | 4.79 | 4.73 | 4.85 | 540856 | 4.81 | 516115 | Y | 4 |
| AR 1260 | 6.84 | 6.77 | 6.93 | 780355 | | | | |
| DBC | | | | | | | | |
| TCMX | 1.52 | 1.50 | 1.54 | 5814664 | 1.51 | 5473100 | Y | 6 |

Under QNT Y/N: enter Y if quantitation was performed, N if not performed.
%D must be less than or equal to 20.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 20.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.

# PESTICIDE/PCB STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4096

Instrument ID: GC A GC Column ID: DB-608

| DATE(S) OF ANALYSIS | FROM: 10-20-94 | TO: 10-20-94 | TIME(S) OF ANALYSIS | FROM: 00:47 | TO: 05:24 |
|---|---|---|---|---|---|

| DATE OF ANALYSIS | 10-27-94 |
|---|---|
| TIME OF ANALYSIS | VARIES |
| EPA SAMPLE NO. (STANDARD) | DAILY CAL |

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
|---|---|---|---|---|---|---|---|---|
| AR 1221 | 1.81 | 1.75 | 1.87 | 254648 | 1.81 | 241612 | Y | 5 |
| AR 1232 | 2.62 | 2.54 | 2.70 | 500296 | 2.62 | 468036 | Y | 12 |
| AR 1242/1016 | | | | | | | | |
| AR 1248 | 3.63 | 3.57 | 3.69 | 803518 | 3.63 | 831607 | Y | 4 |
| AR 1254 | 4.82 | 4.76 | 4.88 | 540856 | 4.82 | 457431 | Y | 15 |
| AR 1260 | | | | | | | | |
| DBC | | | | | | | | |
| TCMX | 1.52 | 1.50 | 1.54 | 5814664 | 1.52 | 5541200 | Y | 5 |

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 20.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 20.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.



FORM IX PEST

9

# PESTICIDE/PCB STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4096

Instrument ID: GC A GC Column ID: DB-608

DATE(S) OF ANALYSIS FROM: 10-20-94 TO: 10-20-94
TIME(S) OF ANALYSIS FROM: 00:47 TO: 05:24

DATE OF ANALYSIS 10-27-94
TIME OF ANALYSIS 21:10
EPA SAMPLE NO. (STANDARD) AR3254

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
|---|---|---|---|---|---|---|---|---|
| AR 1221 | 1.81 | 1.75 | 1.87 | 254648 | | | | |
| AR 1232 | 2.62 | 2.54 | 2.70 | 500296 | 2.61 | 488546 | N | 6 |
| AR 1242/1016 | | | | | | | | |
| AR 1248 | 3.63 | 3.57 | 3.69 | 803518 | | | | |
| AR 1254 | 4.82 | 4.76 | 4.88 | 540856 | 4.81 | 497226 | N | 8 |
| AR 1260 | | | | | | | | |
| DBC | | | | | | | | |
| TCMX | 1.52 | 1.50 | 1.54 | 5814664 | 1.51 | 5703000 | N | 2 |

Under QNT Y/N: enter Y if quantitation was performed, N if not performed.
%D must be less than or equal to 20.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 20.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.



FORM IX PEST

11A
PCB CALIBRATION STANDARD CONCENTRATIONS

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4096

Instrument ID: GCA GC Column ID: DB-5MS,DB-608

Calibration Date(s): 10-20-94 to 10-20-94

| COMPOUD | CONCENTRATION (ng/ml) LEVEL #1 | CONCENTRATION (ng/ml) LEVEL #2 | CONCENTRATION (ng/ml) LEVEL #3 | CONCENTRATION (ng/ml) LEVEL #4 | CONCENTRATION (ng/ml) LEVEL #5 |
|---|---|---|---|---|---|
| AR 1221 | 50 | 100 | 250 | 500 | 1000 |
| AR 1232 | 50 | 100 | 250 | 500 | 1000 |
| AR 1242/1016 | 50 | 100 | 250 | 500 | 1000 |
| AR 1248 | 50 | 100 | 250 | 500 | 1000 |
| AR 1254 | 50 | 100 | 250 | 500 | 1000 |
| AR 1260 | 50 | 100 | 250 | 500 | 1000 |
| TCMX | 1 | 2 | 5 | 10 | 20 |
| DBC | 10 | 20 | 50 | 100 | 200 |

| COMPOUD | CONCENTRATION (ng/ml) LEVEL #6 | CONCENTRATION (ng/ml) LEVEL #7 | CONCENTRATION (ng/ml) LEVEL #8 | CONCENTRATION (ng/ml) LEVEL #9 | CONCENTRATION (ng/ml) LEVEL #10 |
|---|---|---|---|---|---|
| AR 1221 | 1500 | | | | |
| AR 1232 | 1500 | | | | |
| AR 1242/1016 | 1500 | | | | |
| AR 1248 | 1500 | | | | |
| AR 1254 | 1500 | | | | |
| AR 1260 | 1500 | | | | |
| TCMX | 30 | | | | |
| DBC | 300 | | | | |

FORM XI PEST-2

8E

PCB EVALUATION STANDARDS SUMMARY

007211

ab Name: ITAS-St. Louis Contract: 500-01

ab Code: ITSL Case No.: SAS No.: SDG No.: 4096

nstrument ID: GC A GC Column ID: DB-608

ates of Analyses: 10-26-94 to 10-27-94

| | EPA SAMPLE NO. | LAB SAMPLE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|
| 01 | AR2148-3 | AR2148-3 | 10-26-94 | 08:58 |
| 02 | AR3254-3 | AR3254-3 | 10-26-94 | 09:13 |
| 03 | AR4260-3 | AR4260-3 | 10-26-94 | 09:27 |
| 04 | ZZZZZ | INDA | 10-26-94 | 09:42 |
| 05 | ZZZZZ | ZZZZZ | 10-26-94 | 10:05 |
| 06 | ZZZZZ | ZZZZZ | 10-26-94 | 10:19 |
| 07 | ZZZZZ | ZZZZZ | 10-26-94 | 10:34 |
| 08 | ZZZZZ | ZZZZZ | 10-26-94 | 10:49 |
| 09 | ZZZZZ | ZZZZZ | 10-26-94 | 11:03 |
| 10 | ZZZZZ | ZZZZZ | 10-26-94 | 11:18 |
| 11 | ZZZZZ | ZZZZZ | 10-26-94 | 11:32 |
| 12 | ZZZZZ | ZZZZZ | 10-26-94 | 11:47 |
| 13 | ZZZZZ | ZZZZZ | 10-26-94 | 12:02 |
| 14 | ZZZZZ | ZZZZZ | 10-26-94 | 12:16 |
| 15 | ZZZZZ | INDA | 10-26-94 | 12:45 |
| 16 | ZZZZZ | INDB | 10-26-94 | 13:00 |
| 17 | ZZZZZ | INDA | 10-26-94 | 14:10 |
| 18 | ZZZZZ | ZZZZZ | 10-26-94 | 14:28 |
| 19 | ZZZZZ | ZZZZZ | 10-26-94 | 14:57 |
| 20 | ZZZZZ | ZZZZZ | 10-26-94 | 15:11 |
| 21 | ZZZZZ | ZZZZZ | 10-26-94 | 15:26 |
| 22 | ZZZZZ | ZZZZZ | 10-26-94 | 15:41 |
| 23 | ZZZZZ | ZZZZZ | 10-26-94 | 15:55 |
| 24 | ZZZZZ | ZZZZZ | 10-26-94 | 16:10 |
| 25 | ZZZZZ | ZZZZZ | 10-26-94 | 16:24 |
| 26 | ZZZZZ | ZZZZZ | 10-26-94 | 16:39 |
| 27 | ZZZZZ | ZZZZZ | 10-26-94 | 16:53 |
| 28 | ZZZZZ | INDA | 10-26-94 | 17:23 |
| 29 | ZZZZZ | INDB | 10-26-94 | 17:37 |
| 30 | ZZZZZ | ZZZZZ | 10-26-94 | 17:52 |
| 31 | ZZZZZ | ZZZZZ | 10-26-94 | 18:06 |
| 32 | ZZZZZ | ZZZZZ | 10-26-94 | 18:21 |
| 33 | ZZZZZ | ZZZZZ | 10-26-94 | 18:50 |
| 34 | ZZZZZ | ZZZZZ | 10-26-94 | 19:05 |



FORM VIII PEST

8E

# PCB EVALUATION STANDARDS SUMMARY

Lab Name: ITAS-St. Louis  Contract: 500-01

Lab Code: ITSL  Case No.: _____  SAS No.: ____  SDG No.: 4096

Instrument ID: GC A  GC Column ID: DB-608

Dates of Analyses: 10-26-94 to 10-27-94

| | EPA SAMPLE NO. | LAB SAMPLE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|
| 01 | ZZZZZ | ZZZZZ | 10-26-94 | 19:19 |
| 02 | ZZZZZ | ZZZZZ | 10-26-94 | 19:34 |
| 03 | ZZZZZ | ZZZZZ | 10-26-94 | 19:48 |
| 04 | ZZZZZ | ZZZZZ | 10-26-94 | 20:03 |
| 05 | ZZZZZ | ZZZZZ | 10-26-94 | 20:17 |
| 06 | ZZZZZ | INDA | 10-26-94 | 20:46 |
| 07 | ZZZZZ | INDB | 10-26-94 | 21:01 |
| 08 | ZZZZZ | AR3254-3 | 10-26-94 | 21:15 |
| 09 | ZZZZZ | ZZZZZ | 10-26-94 | 21:30 |
| 10 | ZZZZZ | ZZZZZ | 10-26-94 | 21:44 |
| 11 | ZZZZZ | ZZZZZ | 10-26-94 | 21:59 |
| 12 | ZZZZZ | ZZZZZ | 10-26-94 | 22:14 |
| 13 | ZZZZZ | ZZZZZ | 10-27-94 | 01:51 |
| 14 | ZZZZZ | ZZZZZ | 10-27-94 | 02:05 |
| 15 | ZZZZZ | ZZZZZ | 10-27-94 | 02:34 |
| 16 | ZZZZZ | ZZZZZ | 10-27-94 | 02:49 |
| 17 | ZZZZZ | ZZZZZ | 10-27-94 | 03:04 |
| 18 | ZZZZZ | ZZZZZ | 10-27-94 | 03:18 |
| 19 | ZZZZZ | INDA | 10-27-94 | 03:47 |
| 20 | ZZZZZ | INDB | 10-27-94 | 04:02 |
| 21 | AR3254-4 | AR3254-4 | 10-27-94 | 04:16 |
| 22 | PBLK01 | BLK48041 | 10-27-94 | 04:31 |
| 23 | PSPK01 | SPK48041 | 10-27-94 | 04:46 |
| 24 | 200093913 | 6342-007 | 10-27-94 | 05:00 |
| 25 | 200093921 | 6342-008 | 10-27-94 | 05:15 |
| 26 | 200093921MS | 6342-008MS | 10-27-94 | 05:29 |
| 27 | 200093921MSD | 6342-008MSD | 10-27-94 | 05:44 |
| 28 | 200094017 | 6342-009 | 10-27-94 | 05:59 |
| 29 | ZZZZZ | ZZZZZ | 10-27-94 | 06:13 |
| 30 | ZZZZZ | ZZZZZ | 10-27-94 | 06:28 |
| 31 | ZZZZZ | ZZZZZ | 10-27-94 | 06:43 |
| 32 | ZZZZZ | ZZZZZ | 10-27-94 | 17:30 |
| 33 | AR2148-3 | AR2148-3 | 10-27-94 | 17:45 |
| 34 | AR3254-3 | AR3254-3 | 10-27-94 | 17:59 |



FORM VIII PEST

8E
PCB EVALUATION STANDARDS SUMMARY

007211

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4096

Instrument ID: GC A GC Column ID: DB-608

Dates of Analyses: 10-26-94 to 10-27-94

| | EPA SAMPLE NO. | LAB SAMPLE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|
| 01 | ZZZZZ | ZZZZZ | 10-27-94 | 18:14 |
| 02 | 200093913DL | 6342-007DL | 10-27-94 | 18:44 |
| 03 | 200093921DL | 6342-008DL | 10-27-94 | 18:58 |
| 04 | 200093921MSDL | 6342-008MSDL | 10-27-94 | 19:13 |
| 05 | 200093921MSDDL | 6342-008MSDDL | 10-27-94 | 19:27 |
| 06 | ZZZZZ | INDA | 10-27-94 | 19:55 |
| 07 | ZZZZZ | INDB | 10-27-94 | 20:10 |
| 08 | ZZZZZ | INDA | 10-27-94 | 20:26 |
| 09 | ZZZZZ | TOX | 10-27-94 | 20:40 |
| 10 | ZZZZZ | TCHLOR | 10-27-94 | 20:55 |
| 11 | AR3254-3 | AR3254-3 | 10-27-94 | 21:10 |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |



FORM VIII PEST

1D

# PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLK01

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4096

Matrix: (soil/water) WATER Lab Sample ID: BLK 48041

Sample wt/vol: 1000 (g/ml) ML Lab File ID: _____

Level: (low/med) LOW Date Sampled : _____

% Moisture: not dec. _____ dec. _____ Date Extracted: 10-12-94

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10-27-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

| CAS NO. | Compound | | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | 1.0 | U |
| 11141-16-5 | Aroclor-1232 | 1.0 | U |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | 1.0 | U |
| 12672-29-6 | Aroclor-1248 | 1.0 | U |
| 11097-69-1 | Aroclor-1254 | 1.0 | U |
| 11096-82-5 | Aroclor-1260 | 1.0 | U |

FORM I PEST

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
PSPK01

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4096

Matrix: (soil/water) WATER Lab Sample ID: SPK 48041

Sample wt/vol: 1000 (g/ml) ML Lab File ID: _____

Level: (low/med) LOW Date Sampled : _____

% Moisture: not dec. _____ dec. _____ Date Extracted: 10-12-94

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10-27-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | 1.0 | U |
| 11141-16-5 | Aroclor-1232 | 1.0 | U |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | 1.0 | U |
| 12672-29-6 | Aroclor-1248 | 1.0 | U |
| 11097-69-1 | Aroclor-1254 | 6.4 | |
| 11096-82-5 | Aroclor-1260 | 1.0 | U |

FORM I PEST

USER SAMPLE ID : 400000
SAMPLE ID : 200093916
SAMPLE PT : 400000
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000004096
LAB : ITAS-STL
ASL : B

000611

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | C94-198/TOTAL TH - COLOR ANALYSIS (MG/L) | | | | | | | | | | |
| | THORIUM | 0.4 | U | | | mg/L | 20-OCT-94 | 17-OCT-94 | | COMPLETE / ONLINE | |

1 RECORD PRINTED

USER SAMPLE ID : 400000
SAMPLE ID : 200093915
SAMPLE PT : 400000
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000004096
LAB : FEMP INORGANICS-EPM
ASL : B

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3002/U - BRPADAP ANALYSIS (MG/L) | | | | | | | | | | |
| | URANIUM | 20.5 | | | | mg/L | 10-OCT-94 | 07-OCT-94 | | COMPLETE / ONLINE | |

1 RECORD PRINTED



**********

Your Selection Criteria Was: Release Number: 1000004096 Sample ID Range: thru Display Text? Y
Laboratory: Exclude Approval Lines? Y

USER SAMPLE ID : 400000
SAMPLE ID : 200093918
SAMPLE PT : 400001
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000004096
LAB : ITAS-STL
ASL : B

000613

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4013/ALPHA/BETA SCREEN, PCI/ML | | | | | | | | | | |
| | ALPHA | 13 | | | | pCi/m | 30-SEP-94 | 30-SEP-94 | | COMPLETE / ONLINE | |
| | BETA | 9.7 | | | | pCi/m | 30-SEP-94 | 30-SEP-94 | | COMPLETE / ONLINE | |

2 RECORDS PRINTED

**********

Your Selection Criteria Was: Release Number: 1000004096 Sample ID Range: thru Display Text? Y
Laboratory: Exclude Approval Lines? Y

USER SAMPLE ID : 400001
SAMPLE ID : 200093923
SAMPLE PT : 400001
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000004096
LAB : FEMP INORGANICS-EPM
ASL : B

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3002/U - BRPADAP ANALYSIS (MG/L) | | | | | | | | | | |
| | URANIUM | 20.6 | | | | mg/L | 10-OCT-94 | 07-OCT-94 | | COMPLETE / ONLINE | |

1 RECORD PRINTED

000614

**********

Your Selection Criteria Was: Release Number: 1000004096 Sample ID Range: thru Display Text? Y
Laboratory: Exclude Approval Lines? Y

00221

USER SAMPLE ID : 400001
SAMPLE ID : 200093924
SAMPLE PT : 400001
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000004096
LAB : ITAS-STL
ASL : B

000615

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | C94-198/TOTAL TH - COLOR ANALYSIS (MG/L) | | | | | | | | | | |
| | THORIUM | 0.4 | U | | | mg/L | 20-OCT-94 | 17-OCT-94 | | COMPLETE / ONLINE | |

1 RECORD PRINTED

USER SAMPLE ID : 400001
SAMPLE ID : 200093926
SAMPLE PT : 400010
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000004096
LAB : ITAS-STL
ASL : B

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4013/ALPHA/BETA SCREEN, PCI/ML | | | | | | | | | | |
| | ALPHA | 12 | | | | pCi/m | 30-SEP-94 | 30-SEP-94 | | COMPLETE / ONLINE | |
| | BETA | 10 | | | | pCi/m | 30-SEP-94 | 30-SEP-94 | | COMPLETE / ONLINE | |

2 RECORDS PRINTED

000616

**********

Your Selection Criteria Was: Release Number: 1000004096 Sample ID Range: thru Display Text? Y
Laboratory: Exclude Approval Lines? Y

000221

USER SAMPLE ID : 400010
SAMPLE ID : 200094019
SAMPLE PT : 400010
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000004096
LAB : FEMP INORGANICS-EPM
ASL : B

000647

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3062/U - LASER ANALYSIS (UG/L) | | | | | | | | | | |
| | URANIUM | 0.2 | U | | | ug/L | 11-OCT-94 | 10-OCT-94 | | COMPLETE / ONLINE | |

1 RECORD PRINTED

USER SAMPLE ID : 400010
SAMPLE ID : 200094021
SAMPLE PT : 400010
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000004096
LAB : ITAS-STL
ASL : B

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | C94-198/TOTAL TH - COLOR ANALYSIS (MG/L) | | | | | | | | | | |
| | THORIUM | 0.4 | U | | | mg/L | 20-OCT-94 | 17-OCT-94 | | COMPLETE / ONLINE | |

1 RECORD PRINTED

000618

**********

Your Selection Criteria Was: Release Number: 1000004096 Sample ID Range: thru Display Text? Y
Laboratory: Exclude Approval Lines? Y

00721A

USER SAMPLE ID : 400010
SAMPLE ID : 200094023
SAMPLE PT : 400011
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000004096
LAB : ITAS-STL
ASL : B

000619

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4013/ALPHA/BETA SCREEN, PCI/ML | | | | | | | | | | |
| | ALPHA | 0.11 | U | | | pCi/m | 30-SEP-94 | 30-SEP-94 | | COMPLETE / ONLINE | |
| | BETA | 0.22 | U | | | pCi/m | 30-SEP-94 | 30-SEP-94 | | COMPLETE / ONLINE | |

2 RECORDS PRINTED

**********

Your Selection Criteria Was: Release Number: 1000004096 Sample ID Range: thru Display Text? Y
Laboratory: Exclude Approval Lines? Y

USER SAMPLE ID : 400011
SAMPLE ID : 200094025
SAMPLE PT : 400011
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000004096
LAB : FEMP RADIOCHEMICAL
ASL : B

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4013/ALPHA/BETA SCREEN, PCI/ML | | | | | | | | | | |
| | ALPHA | 0.11 | U | | | pCi/m | 30-SEP-94 | 30-SEP-94 | | COMPLETE / ONLINE | |
| | BETA | 0.23 | U | | | pCi/m | 30-SEP-94 | 30-SEP-94 | | COMPLETE / ONLINE | |

2 RECORDS PRINTED

END OF REPORT

000620

**********

Your Selection Criteria Was: Release Number: 1000004096 Sample ID Range: thru Display Text? Y
Laboratory: Exclude Approval Lines? Y

00721

**Item 3 - Laboratory Analytical Results - Scabbled Concrete**

Copied for D. Entry 11/23/94 GLM

Recd from CM 11/18/94 GLM

Quanterra Environmental Services 007211

Quanterra Incorporated
13715 Rider Trail North
Earth City, Missouri 63045

314 298-8566 Telephone
314 298-8757 Fax

# CERTIFICATE OF ANALYSIS

FERMCO
PO Box 398074
Cincinnati, OH 45239-8704

ATTENTION: Mainerd Sorensen

November 16, 1994



| | |
|---|---|
| PROJECT NUMBER: | 500.01 |
| RELEASE NUMBER: | 4052 |
| DATE RECEIVED: | September 29, 1994 |
| NUMBER OF SAMPLES: | Twenty-four (24) |
| SAMPLE MATRIX: | Six (6) Matrix Code A (Water)<br>Eighteen (18) Matrix Code C (Construction Material) |

## I. Introduction

On September 29, 1994, twenty-four (24) samples were received at Quanterra Environmental Services at St. Louis from Fernald Environmental Restoration Management Company. The list of analytical tests performed, as well as receipt and analysis, can be found in the attached report. The samples were labeled as follows:

| FERMCO SAMPLE ID | QUANTERRA SAMPLE ID | ANALYSES REQUESTED |
|---|---|---|
| ✓ 200093930 FB | 6271-001 | Table 5 (Total VOA's) |
| 200093933 FB | 6271-002 | Table 22 (PCB's)* |
| ✓ 200093927 FB | 6271-003 | Table 3 (Total Metals) |
| ✓ 200093928 FB | 6271-004 | Table 12 (Total Herbicides)* missing |
| ✓ 200093929 FB | 6271-005 | Table 8 (Total BNA's)* (Total Fund) |
| ✓ 200093935 TB | 6271-006 | Table 5 (Total VOA's) |
| ✓ 200093938 C | 6271-007 | Table 12 (Total Herbicides) |

Quanterra Environmental Services

FERMCO
Project Number: 500.01
November 16, 1994

Release Number: 4052

| FERMCO SAMPLE ID | QUANTERRA SAMPLE ID | ANALYSES REQUESTED |
|---|---|---|
| 200093939 | 6271-008 | Table 8 (Total BNA's) |
| 200093940 | 6271-009 | Table 5 (Total VOA's) |
| 200093943 | 6271-010 | Table 22(PCB's) |
| 200093944 | 6271-011 | Table 49 (TOX) |
| 200093944 | 6271-011DUP | Table 40 (TOX) |
| 200093944 | 6271-011MS | Table 40 (TOX) |
| 200093945 | 6271-012 | Table 15A (Total Cyanide) |
| 200093945 | 6271-012DUP | Table 15A (Total Cyanide) |
| 200093945 | 6271-012MS | Table 15A (Total Cyanide) |
| 200093946 | 6271-013 | Table 15B (Total Sulfide) |
| 200093946 | 6271-013DUP | Table 15B (Total Sulfide) |
| 200093946 | 6271-013MS | Table 15B (Total Sulfide) |
| 200093947 | 6271-014 | Table 16 (Paint Filter Test)— |
| | | Table 40 (pH) |
| 200093947 | 6271-014DUP | Table 16 (Paint Filter Test)— |
| | | Table 40 (pH) |
| 200093937 | 6271-015 | Table 3 (Total Metals) |
| 200093951 | 6271-016 | Table 22 (PCB's) |
| 200093952 | 6271-017 | Table 8 (Total BNA's) |
| 200093953 | 6271-018 | Table 5 (Total VOA's) |
| 200093962 | 6271-019 | Table 22 (PCB's) |
| 200093956 | 6271-020 | Table 40(TOX) |
| 200093957 | 6271-021 | Table 15A (Total Cyanide) |
| 200093958 | 6271-022 | Table 15B (Total Sulfide) |
| 200093959 | 6271-023 | Table 16 (Paint Filter Test) |
| | | Table 40 (pH) |
| 200093950 | 6271-024 | Table 3 (Total Metals) |

## II. Analytical Results/Methodology

The analytical results for this report are presented by analytical tests. Each set of data will include sample identification information, the analytical results, and the appropriate detection limits.

| | | |
|---|---|---|
| 434285 | Bob White | FERMCO<br>P.O. BOX 398704<br>CINCINNATI, OH 45239-8704 |
| RELEASE NO.: 1000004052 | FERMCO CONTACT/PHONE: Jenny Vance (513) 738-9028 | |
| SAMPLE SHIPMENT DATE: 9-28-94 | REQUIRED REPORT DATE: NORMAL (PER C | RECEIVING LAB NAME: Quanterra St Louis |
| SAMPLE SHIPPER: GORDON BELL | SAMPLE TEAM: FOG | RECEIVING LAB ADDRESS: 13715 Rider Trail North - EARTH CITY, MO 63045 |

| | SAMPLE NUMBER | SAMPLE DESCRIPTION/TYPE/Matrix CODE | DATE/TIME COLLECTED | CONTAINER TYPE | SAMPLE VOLUME | PRESERVATION | ANALYSIS REQUESTED | % Full | CONDITION UPON RECEIPT Temp | PH |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 200093930/044801-001 | FB A | 9-26-94 0925 | GLS | 2x40ml | HCL+4°C | TBL 5 | 100 | 5°C | |
| 2 | 200093933/044801-001 | FB A | 9-26-94 0925 | GLS | 1x40ml | 4°C | TBL 22 | 100 | 5° | |
| 3 | 200093927/044801-001 | FB A | 9-26-94 0925 | PLS | 1x1L | $HNO_3$ | TBL 3 | 100 | 5° | 2 |
| 4 | 200093928/044801-001 | FB A | 9-26-94 0925 | AMB GLS | 1x1GAL | $HNO_3$ | TBL 12 | 100 | 5 | 2 |
| 5 | 200093929/044801-001 | FB A | 9-26-94 0925 | AMB GLS | 1x1GAL | 4°C | TBL 8 | 100 | 5 | |
| 6 | 200093935/044801-001 | TB per [illegible] 9/28/94 A | 9-26-94 0800 | GLS | 3x40ml | HCL+4°C | TBL 5 | 100 | 5 | |
| 7 | 200093938/044801-002 | [illegible] C | 9-26-94 0910 | GLS | 1x120ml | 4°C | TBL 12 | 90 | 6 | |
| 8 | 200093939/044801-002 | C | 9-26-94 0910 | GLS | 1x120ml | 4°C | TBL 8 | 90 | 6 | |
| 9 | 200093940/044801-002 | C | 9-26-94 0910 | GLS | 3x120ml | 4°C | TBL 5 | 90 | 6 | |
| 10 | 200093943/044801-002 | C | 9-26-94 0910 | GLS | 1x120ml | 4°C | TBL 22 | 90 | 6 | |
| 11 | 200093944/044801-002 | C | 9-26-94 0910 | GLS | 1x120ml | 4°C | TBL 49 | 90 | 6 | |

SPECIAL INSTRUCTIONS: FB = Field Blank TBL = TABLE

| SAMPLE PLAN NUMBER: | PROJECT NAME: | CHARGE NUMBER: |
|---|---|---|
| NA | DETREX STILL 04.48.01 | 3BSU3 |

| CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Cooler Sealed With Custody Tape | | | | | | | |

| RELINQUISHED | | | RECEIVED | | |
|---|---|---|---|---|---|
| RELINQUISHED BY | DATE | TIME | DATE | TIME | RECEIVED BY |
| 1. Gordon Bell | 9-28-94 | 1300 | 1. 9-29-94 | 0845 | Brad Mitchell |
| 2. | | | 2. | | |
| 3. | | | 3. | | |

| NO. | DISTRIBUTION OF COPIES | |
|---|---|---|
| 1 | *WHITE* | REMAIN WITH SAMPLES |
| 2 | *YELLOW* | OFF-SITE LAB |
| 3 | *PINK* | FERMCO DATA REVIEW AND REPORTING |
| 4 | *BLUE* | ORIGINATOR |

FS-F-3366 (REV. 12/31/92)

*IF SEALS ARE BROKEN, CONTACT THE FERMCO CONTACT LISTED ABOVE IMMEDIATELY.

000624

000624

Martin Marietta Energy Systems Environmental Restoration Management Corporation

Page 2 of 3 CUR# 1837

RSO - ANALYTICAL LABORATORY SERVICES

# OFF-SITE LABORATORY CUSTODY TRANSFER AND ANALYSIS REQUEST RECORD (OCTR)

REFERENCE DOCUMENT NO: SAR/CR: SPL-94-6209

000625

| | | |
|---|---|---|
| PURCHASE ORDER NO.: 434285 | OFF-SITE LAB CONTACT: Bob White | REPORT TO: FERMCO P.O. BOX 398704 CINCINNATI, OH 45239-8704 |
| RELEASE NO.: 1000004052 | FERMCO CONTACT/PHONE: Jenny Vance (513) 738-9028 | |
| SAMPLE SHIPMENT DATE: 9-28-94 | REQUIRED REPORT DATE: Normal (Per Contract) | RECEIVING LAB NAME: QUANTERRA - ST LOUIS |
| SAMPLE SHIPPER: Gordon Bell | SAMPLE TEAM: FO6 | RECEIVING LAB ADDRESS: 13715 Rider Trail North - Earth City, MO 63045 |

| | SAMPLE NUMBER | SAMPLE DESCRIPTION/TYPE/MATRIX CODE | DATE/TIME COLLECTED | CONTAINER TYPE | SAMPLE VOLUME | PRESERVATION | ANALYSIS REQUESTED | % Full | CONDITION UPON RECEIPT* |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 200093945/044801-002 | C | 9-26-94 0910 | GLS | 1x120ml | 4°C | TBL 15A | 95 | |
| 2 | 200093946/044801-002 | C | 9-26-94 0910 | GLS | 1x120ml | 4°C | TBL 15B | 95 | |
| 3 | 200093947/044801-002 | C | 9-26-94 0910 | GLS | 1x120ml | None | TBLS 16+40 | 95 | |
| 4 | 200093937/044801-002 | C | 9-26-94 0910 | GLS | 1x ~~250~~ 500ml | 4°C | TBL 3 | 95 | |
| 5 | 200093951/044801-002 | C | 9-26-94 0920 | GLS | 1x120ml | 4°C | TBL 22 | 95 | |
| 6 | 200093952/044801-002 | C | 9-26-94 0920 | GLS | 1x120ml | 4°C | TBL 8 | 95 | |
| 7 | 200093953/044801-002 | C | 9-26-94 0920 | GLS | 3x120ml | 4°C | TBL 5 | 95 | |
| 8 | 200093962/044801-002 | C | 9-26-94 0920 | GLS | 1x120ml | 4°C | TBL 22 | 95 | |
| 9 | 200093956/044801-002 | C | 9-26-94 0920 | GLS | 1x120ml | 4°C | TBL 49 | 95 | |
| 10 | 200093957/044801-002 | C | 9-26-94 0920 | GLS | 1x120ml | 4°C | TBL 15A | 95 | |
| 11 | 200093958/044801-002 | C | 9-26-94 0920 | GLS | 1x120ml | 4°C | TBL 15B | 95 | |

SPECIAL INSTRUCTIONS: TBL = Table

| SAMPLE PLAN NUMBER: | PROJECT NAME: | CHARGE NUMBER: |
|---|---|---|
| NA | Detrex Still 04.48.01 | 3BSV3 |

| CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Coolers Sealed With Custody Tape | | | | | | | | |

| RELINQUISHED | | | RECEIVED | | |
|---|---|---|---|---|---|
| RELINQUISHED BY | DATE | TIME | DATE | TIME | RECEIVED BY |
| 1. Gordon Bell | 9-28-94 | 1300 | 1. 9-29-94 | 0845 | 2nd Mitchell |
| 2. | | | 2. | | |
| 3. | | | 3. | | |

| NO. | DISTRIBUTION OF COPIES |
|---|---|
| 1 | WHITE REMAIN WITH SAMPLES |

# OFF-SITE LABORATORY CUSTODY TRANSFER AND ANALYSIS REQUEST RECORD (OCTR)

SAR/CR: SPL-94-6209

| | | |
|---|---|---|
| PURCHASE ORDER NO.: 434285 | OFF-SITE LAB CONTACT: Bob White | REPORT TO: FERMCO, P O BOX 398704, CINCINNATI, OH 45239-8704 |
| RELEASE NO.: 1000004052 | FERMCO CONTACT/PHONE: JENNY VANCE (513) 738-9028 | |
| SAMPLE SHIPMENT DATE: 9-28-94 | REQUIRED REPORT DATE: Normal (Per Contract) | RECEIVING LAB NAME: Quanterra - St Louis |
| SAMPLE SHIPPER: GORDON BELL | SAMPLE TEAM: FOG | RECEIVING LAB ADDRESS: 13715 Rider Trail North - EARTH CITY, MO 63045 |

| | SAMPLE NUMBER | SAMPLE DESCRIPTION/TYPE/Matrix CODE | DATE/TIME COLLECTED | CONTAINER TYPE | SAMPLE VOLUME | PRESERVATION | ANALYSIS REQUESTED | % FULL | CONDITION UPON RECEIPT* |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 200093959/044801-002 | C | 9-26-94 0920 | GLS | 1x120ml | None | TBLS 16+40 | 95 | |
| 2 | 200093950/044801-002 | C | 9-26-94 0920 | GLS | 1x500ml 9-27-94 | 4°C | TBL 3 | 95 | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |
| 11 | | | | | | | | | |

GOB 9-28-94 Nothing Follows

SPECIAL INSTRUCTIONS: TBL = Table

| SAMPLE PLAN NUMBER | PROJECT NAME | CHARGE NUMBER |
|---|---|---|
| NA | Detrex Still 04.48.01 | 3BSU3 |

| CAN NO. | SEAL NO. | CAN NO. | SEAL NO. | CAN NO. | SEAL NO. | CAN NO. | SEAL NO. | CAN NO. | SEAL NO. | CAN NO. | SEAL NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Cooler | Sealed | with | Custody | TAPE | | | | | |

| RELINQUISHED | | | RECEIVED | | |
|---|---|---|---|---|---|
| RELINQUISHED BY | DATE | TIME | DATE | TIME | RECEIVED BY |
| 1. Gordon Bell | 9-28-94 | 1300 | 1. 9-29-94 | 0845 | [illegible] |
| 2. | | | 2. | | |
| 3. | | | 3. | | |

| NO. | | DISTRIBUTION OF COPIES |
|---|---|---|
| 1 | WHITE | REMAIN WITH SAMPLES |
| 2 | YELLOW | OFF-SITE LAB |
| 3 | PINK | FERMCO DATA REVIEW AND REPORTING |
| 4 | BLUE | ORIGINATOR |

*IF SEALS ARE BROKEN, CONTACT THE FERMCO CONTACT LISTED ABOVE IMMEDIATELY.

FS-F-3366 (REV. 12/31/92)

000622

002211

# QUANTERRA
# ST. LOUIS LABORATORY
# DATA ENTRY REVIEW DOCUMENTATION

(Fill in as applicable)

PROJECT NUMBER 500.01

SDG NO. N/A

LOG-IN NUMBERS 6271

SAMPLE NUMBERS 6271-013; -013 DUP; -013 MS; -022

PARAMETER(S) S/9030

ENTERED BY: Laura Wuchinger

DATE ENTERED: October 26, 1994

REVIEWED BY: K. Chapelle

DATE REVIEWED: 10-27-94

SL-93-QA-0034, Rev. (

# QUANTERRA
# ST. LOUIS LABORATORY
# DATA ENTRY REVIEW DOCUMENTATION

(Fill in as applicable)

PROJECT NUMBER 500.01

SDG NO. N/A

LOG-IN NUMBERS 6271

SAMPLE NUMBERS 6271-014; -014DUP; -023

PARAMETER(S) Paint /9095; pH /9045

ENTERED BY: Laura Wuchmeyer

DATE ENTERED: October 26, 1994

REVIEWED BY: K.R. Gianvelli

DATE REVIEWED: 10-27-94

SL-93-QA-0034, Rev. 0

# QUANTERRA
# ST. LOUIS LABORATORY
# DATA ENTRY REVIEW DOCUMENTATION

(Fill in as applicable)

PROJECT NUMBER 500.01

SDG NO. N/A

LOG-IN NUMBERS 6271

SAMPLE NUMBERS 6271-012; -012DUP; -012MS; -021

PARAMETER(S) CN/9010

ENTERED BY: Laura [illegible]

DATE ENTERED: October 26, 1994

REVIEWED BY: [illegible]

DATE REVIEWED: 10-27-94

SL-93-QA-0034, Rev. 0

The analyses requested includes: Total Volatiles by EPA method 8240, PCB's by EPA method 8080, Total Metals by EPA method 6010/7470, Total Semivolatiles by EPA method 8270, Total Herbicides by EPA method 8150, TOX by EPA method 9020, Total Cyanide by EPA method 9010, Total Sulfide by EPA method 9030, Paint Filter Test by EPA method 9095, and pH by EPA method 9045.

III. Quality Control

The QA/QC information can be found immediately following the analytical data. This QA/QC data are used to assess the laboratory's accuracy and precision during the analytical procedure.

Duplicate and matrix spike analyses were performed for Matrix C TOX for sample 200093944 (6271-011).

Duplicate and matrix spike analyses were performed for Matrix C Total Cyanide for sample 200093945 (6271-012).

Duplicate and matrix spike analyses were performed for Matrix C Total Sulfide for sample 200093946 (6271-013).

A duplicate analysis was performed for Matrix C Paint Filter Test and pH for sample 200093947 (6271-014).

Matrix spike and matrix spike duplicate analyses were performed for Matrix C Herbicides for sample 200094000 (6172-008) from Release 3975.

Matrix spike and matrix spike duplicate analyses were performed for Matrix C Total Semivolatiles for sample 200094001 (6172-009) from Release 3975.

Matrix spike and matrix spike duplicate analyses were performed for Total Volatiles for sample 200094002 (6172-010) from Release 3975.

Matrix spike and matrix spike duplicate analyses were performed for Matrix C PCB's for sample 200094005 (6172-011) from Release 3975.

Duplicate and matrix spike analyses were performed for Matrix C Total Metals for sample 200094007 (6172-0012) from Release 3975.

IV. Comments/Nonconformances

HERBICIDES

Sample 200093928 (6271-004) for Herbicides was received improperly preserved with $HNO_3$. Per client request, Herbicide analysis will be performed for sample 200093929.

PCB'S

Insufficient sample was received for PCB analysis. Client was notified and requested that PCB analysis be performed on sample 200093929 (6271-005). The Organic department was notified but sample control was not and the PCB's were not logged in for this sample. However, PCB analysis was performed on the 40mls submitted. No PCB's were found but the detection limits were increased by 250 times. Client was informed and results were submitted "as is".

The percent difference for AR1260 in the daily calibration was 18 which is greater than the +/- 15% difference control limits. Data is reported "as is". There are no positive hits for AR1260 in these samples and the instrument is calibrated to one-half the detection limit so that the compound would still be detected even at the 18 percent difference from the average.

VOLATILES

There are no comments or nonconformances associated with this analysis.

FERMCO
Project Number: 500.01
November 16, 1994

Release Number: 4052

METALS

There are no comments or nonconformances associated with this analysis.

GENERAL WATER QUALITY

CYANIDE - The RPD (relative percent difference) for cyanide sample 200093945 (6271-012) could not be calculated due to values below the detection limits.

There are no comments or nonconformances associated with the TOX, Sulfide, Paint Filter, and pH analyses.

I certify that this Certificate of Analysis is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Reviewed and approved:

Robert E. White

Robert E. White
Project Manager

000633

Quanterra October 05, 1994 09:37 am
Account: 10872 Project: 500.01 Fernald Env. Restoration Mgt. Corp. QAS No. 500 Rev. 2
Master Sample Login: 6271

Project Manager: R. White

Draft: Final: Entered and Reviewed by: PM Review: 10/05/94

Sample Header Template:

| Sample No. / # | Client ID / Container Type | C-Matrix / Analysis | Date: Collected / Class | Received / Preservative | Due / Anal. Due Date | Shipper / Hold Date | Rad Category / Site | Rad Sample No. / (Container Numbers:% Filled) |
|---|---|---|---|---|---|---|---|---|
| 6271-001 | 200093930 | Water | 26-SEP-94 09:25 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 1 | Screening not Required |
| CLP FORMS Compounds added - See Memo | | | | | | | | |
| 2 | VI - Vial-40ml | VOA/8240/Q4 | S | HCL | 21-OCT-94 | 10-OCT-94 | 109K | (101950:100 101951:99) |
| 6271-002 | 200093933 | Water | 26-SEP-94 09:25 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 1 | Screening not Required |
| CLP FORMS | | | | | | | | |
| 1 | VI - Vial-40ml | PCB/8080/Q4 | S | COLD | 21-OCT-94 | 03-OCT-94 | S7B | (101952:100) |
| 6271-003 | 200093927 | Water | 26-SEP-94 09:25 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 1 | Screening not Required |
| CLP FORMS | | | | | | | | |
| 1 | PN - Plastic-1L | HG/7470/Q4 | S | HNO3 | 21-OCT-94 | 24-OCT-94 | S7B | (101954:100) |
| 1 | | ICAP/6010/Q4 | S | HNO3 | 21-OCT-94 | 25-MAR-95 | S7B | (101954:100) |
| 6271-004 | 200093928 | Water | 26-SEP-94 09:25 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 1 | Screening not Required |
| CLP FORMS | | | | | | | | |
| 1 | AN - Amber Glass-4L | HOLD//Q4 | S | HNO3 | 11-&&&-** | 11-&&&-** | S7B | (101956:100) |
| 6271-005 | 200093929 | Water | 26-SEP-94 09:25 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 1 | Screening not Required |
| CLP FORMS | | | | | | | | |
| 1 | AN - Amber Glass-4L | BNA/8270/Q4 | S | COLD | 21-OCT-94 | 03-OCT-94 | S7B | (101957:100) |
| 1 | | HERB/8150/Q4 | S | COLD | 21-OCT-94 | 03-OCT-94 | S7B | (101957:100) |
| 6271-006 | 200093935 | Water | 26-SEP-94 08:00 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 1 | Screening not Required |
| CLP FORMS Compounds added - See Memo | | | | | | | | |
| 3 | VI - Vial-40ml | VOA/8240/Q4 | S | HCL | 21-OCT-94 | 10-OCT-94 | 109K | (101958:100 101959:99 101960:98) |
| 6271-007 | 200093938 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3* | R2922-002 |
| CLP FORMS | | | | | | | | |
| 1 | AN - Amber Glass-120ML | HERB/8150/Q4 | S | COLD | 21-OCT-94 | 10-OCT-94 | S7B | (101961:100) |
| 1 | | PM/IT/Q4 | S | COLD | 26-OCT-94 | 25-MAR-95 | S7B | (101961:100) |
| 6271-008 | 200093939 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3* | R2922-003 |
| CLP FORMS | | | | | | | | |
| 1 | AN - Amber Glass-120ML | BNA/8270/Q4 | S | COLD | 21-OCT-94 | 10-OCT-94 | S7B | (101962:100) |
| 1 | | PM/IT/Q4 | S | COLD | 26-OCT-94 | 25-MAR-95 | S7B | (101962:100) |

3*=Sample has not been rad screened.

Quanterra October 05, 1994 09:37 am
Account: 10872 Project: 500.01 Fernald Env. Restoration Mgt. Corp. QAS No. 500 Rev. 2
Master Sample Login: 6271

Project Manager: R. White

Draft: Final: Entered and Reviewed by:_____ PM Review:_____

Sample Header Template: _____

| Sample No. / Client ID | C-Matrix | Date: Collected | Received | Due | Shipper | Rad Category | Rad Sample No. |
|---|---|---|---|---|---|---|---|
| 6271-009 / 200093940 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3* | R2922-004 |
| CLP FORMS Compounds added - See Memo | | | | | | | |
| # Container Type | Analysis | Class | Preservative | Anal. Due Date | Hold Date | Site | (Container Numbers:% Filled) |
| 3 AN - Amber Glass-120ML | PM/IT/04 | S | COLD | 26-OCT-94 | 25-MAR-95 | 109K | (101963:100 101964:99 101965:98) |
| 3 | VOA/8240/04 | S | COLD | 21-OCT-94 | 10-OCT-94 | 109K | (101963:100 101964:99 101965:98) |
| 6271-010 / 200093943 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3* | R2922-005 |
| CLP FORMS | | | | | | | |
| 1 AN - Amber Glass-120ML | PCB/8080/04 | S | COLD | 21-OCT-94 | 10-OCT-94 | S7B | (101966:100) |
| 1 | PM/IT/04 | S | COLD | 26-OCT-94 | 25-MAR-95 | S7B | (101966:100) |
| 6271-011 / 200093944 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3* | R2922-006 |
| 1 AN - Amber Glass-120ML | PM/IT/04 | S | COLD | 26-OCT-94 | 25-MAR-95 | S7B | (101969:100) |
| 1 | TOX/9020/04 | S | COLD | 21-OCT-94 | 24-OCT-94 | S7B | (101969:100) |
| 6271-011DUP / 200093944 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3* | R2922-006 |
| 1 AN - Amber Glass-120ML | TOX/9020/04 | S | COLD | 21-OCT-94 | 24-OCT-94 | S7B | (101969:100) |
| 6271-011MS / 200093944 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3* | R2922-006 |
| 1 AN - Amber Glass-120ML | TOX/9020/04 | S | COLD | 21-OCT-94 | 24-OCT-94 | S7B | (101969:100) |
| 6271-012 / 200093945 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3* | R2922-007 |
| 1 AN - Amber Glass-120ML | CN/9010/04 | S | COLD | 21-OCT-94 | 10-OCT-94 | S7B | (101970:100) |
| 1 | PM/IT/04 | S | COLD | 26-OCT-94 | 25-MAR-95 | S7B | (101970:100) |
| 6271-012DUP / 200093945 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3* | R2922-007 |
| 1 AN - Amber Glass-120ML | CN/9010/04 | S | COLD | 21-OCT-94 | 10-OCT-94 | S7B | (101970:100) |
| 6271-012MS / 200093945 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3* | R2922-007 |
| 1 AN - Amber Glass-120ML | CN/9010/04 | S | COLD | 21-OCT-94 | 10-OCT-94 | S7B | (101970:100) |

3*=Sample has not been rad screened.



000634

000721

000635

Quanterra October 05, 1994 09:37 am
Account: 10872 Project: 500.01 Fernald Env. Restoration Mgt. Corp. QAS No. 500 Rev. 2
Master Sample Login: 6271

Project Manager: R. White

Draft: Final: Entered and Reviewed by:_____ PM Review:_____

Sample Header Template: _____

| Sample No. / # / Date: | Client ID / Comments / Container Type | C-Matrix / Analysis | Date: Collected / Class | Received / Preservative | Due / Anal. Due Date | Shipper / Hold Date | Site | Rad Category | Rad Sample No. (Container Numbers:% Filled) |
|---|---|---|---|---|---|---|---|---|---|
| 6271-013 | 200093946 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | | 3* | R2922-008 |
| 1 | AN - Amber Glass-120ML | PM/IT/Q4 | S | COLD | 26-OCT-94 | 25-MAR-95 | S7B | | (101971:100) |
| 1 | | S/9030/Q4 | S | COLD | 21-OCT-94 | 03-OCT-94 | S7B | | (101971:100) |
| 6271-013DUP | 200093946 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | | 3* | R2922-008 |
| 1 | AN - Amber Glass-120ML | S/9030/Q4 | S | COLD | 21-OCT-94 | 03-OCT-94 | S7B | | (101971:100) |
| 6271-013MS | 200093946 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | | 3* | R2922-008 |
| 1 | AN - Amber Glass-120ML | S/9030/Q4 | S | COLD | 21-OCT-94 | 03-OCT-94 | S7B | | (101971:100) |
| 6271-014 | 200093947 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | | 3* | R2922-009 |
| 1 | AN - Amber Glass-120ML | PAINT/9095/Q4 | S | COLD | 21-OCT-94 | 24-OCT-94 | S7B | | (101972:100) |
| 1 | | PH/9045/Q4 | S | COLD | 26-OCT-94 | 10-OCT-94 | S7B | | (101972:100) |
| 6271-014DUP | 200093947 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | | 3* | R2922-009 |
| 1 | AN - Amber Glass-120ML | PAINT/9095/Q4 | S | COLD | 21-OCT-94 | 24-OCT-94 | S7B | | (101972:100) |
| 1 | | PH/9045/Q4 | S | COLD | 21-OCT-94 | 10-OCT-94 | S7B | | (101972:100) |
| 6271-015 | 200093937 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | | 3* | R2922-010 |
| | CLP FORMS | | | | | | | | |
| 1 | AN - Amber Glass-500ml | HG/7470/Q4 | S | COLD | 21-OCT-94 | 24-OCT-94 | S7B | | (101973:100) |
| 1 | | ICAP/6010/Q4 | S | COLD | 21-OCT-94 | 25-MAR-95 | S7B | | (101973:100) |
| 1 | | PM/IT/Q4 | S | COLD | 26-OCT-94 | 25-MAR-95 | S7B | | (101973:100) |
| 1 | | RAD/SCREEN/Q4 | S | COLD | 26-OCT-94 | 28-MAR-95 | S7B | | (101973:100) |
| 6271-016 | 200093951 | Solid | 26-SEP-94 09:20 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | | 3* | R2922-011 |
| | CLP FORMS | | | | | | | | |
| 1 | AN - Amber Glass-120ML | PCB/8080/Q4 | S | COLD | 21-OCT-94 | 10-OCT-94 | S7B | | (101975:100) |
| 1 | | PM/IT/Q4 | S | COLD | 26-OCT-94 | 25-MAR-95 | S7B | | (101975:100) |

3*=Sample has not been rad screened.

Quanterra October 05, 1994 09:37 am
Account: 10872 Project: 500.01 Fernald Env. Restoration Mgt. Corp. QAS No. 500 Rev. 2
Master Sample Login: 6271

Project Manager: R. White

Draft: Final: Entered and Reviewed by:_____ PM Review:_____

Sample Header Template: _____

| Sample No. / Comments | Client ID | C-Matrix | Date: Collected | Received | Due | Shipper | Rad Category | Rad Sample No. |
|---|---|---|---|---|---|---|---|---|
| 6271-017 | 200093952 | Solid | 26-SEP-94 09:20 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3* | R2922-012 |
| CLP FORMS | | | | | | | | |

| # | Container Type | Analysis | Class | Preservative | Anal. Due Date | Hold Date | Site | (Container Numbers:% Filled) |
|---|---|---|---|---|---|---|---|---|
| 1 | AN - Amber Glass-120ML | BNA/8270/Q4 | S | COLD | 21-OCT-94 | 10-OCT-94 | S7B | (101976:100) |
| 1 | | PM/IT/Q4 | S | COLD | 26-OCT-94 | 25-MAR-95 | S7B | (101976:100) |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 6271-018 | 200093953 | Solid | 26-SEP-94 09:20 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3* | R2922-013 |
| CLP FORMS Compounds added - See Memo | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 3 | AN - Amber Glass-120ML | PM/IT/Q4 | S | COLD | 26-OCT-94 | 25-MAR-95 | 109K | (101979:100 101984:99 101985:98) |
| 3 | | VOA/8240/Q4 | S | COLD | 21-OCT-94 | 10-OCT-94 | 109K | (101979:100 101984:99 101985:98) |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 6271-019 | 200093962 | Solid | 26-SEP-94 09:20 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3* | R2922-014 |
| CLP FORMS | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | AN - Amber Glass-120ML | PCB/8080/Q4 | S | COLD | 21-OCT-94 | 10-OCT-94 | S7B | (101986:100) |
| 1 | | PM/IT/Q4 | S | COLD | 26-OCT-94 | 25-MAR-95 | S7B | (101986:100) |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 6271-020 | 200093956 | Solid | 26-SEP-94 09:20 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3* | R2922-015 |
| CLP FORMS | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | AN - Amber Glass-120ML | PM/IT/Q4 | S | COLD | 26-OCT-94 | 25-MAR-95 | S7B | (101989:100) |
| 1 | | TOX/9020/Q4 | S | COLD | 21-OCT-94 | 24-OCT-94 | S7B | (101989:100) |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 6271-021 | 200093957 | Solid | 26-SEP-94 09:20 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3* | R2922-016 |
| CLP FORMS | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | AN - Amber Glass-120ML | CN/9010/Q4 | S | COLD | 21-OCT-94 | 10-OCT-94 | S7B | (101990:100) |
| 1 | | PM/IT/Q4 | S | COLD | 26-OCT-94 | 25-MAR-95 | S7B | (101990:100) |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 6271-022 | 200093958 | Solid | 26-SEP-94 09:20 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3* | R2922-017 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | AN - Amber Glass-120ML | PM/IT/Q4 | S | COLD | 26-OCT-94 | 25-MAR-95 | S7B | (101991:100) |
| 1 | | S/9030/Q4 | S | COLD | 21-OCT-94 | 03-OCT-94 | S7B | (101991:100) |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 6271-023 | 200093959 | Solid | 26-SEP-94 09:20 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3* | R2922-018 |
| CLP FORMS | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | AN - Amber Glass-120ML | PAINT/9095/Q4 | S | COLD | 21-OCT-94 | 24-OCT-94 | S7B | (101992:100) |
| 1 | | PH/9045/Q4 | S | COLD | 21-OCT-94 | 10-OCT-94 | S7B | (101992:100) |

3*=Sample has not been rad screened.



000639

000221

000632

Quanterra October 05, 1994 09:37 am
Account: 10872 Project: 500.01 Fernald Env. Restoration Mgt. Corp. QAS No. 500 Rev. 2
Master Sample Login: 6271

Project Manager: R. White

Draft: Final: Entered and Reviewed by:_____ PM Review:_____

Sample Header Template: _____

| Sample No. / Comments / # / Date: | Client ID | C-Matrix | Date: Collected | Received | Due | Shipper | Rad Category | Rad Sample No. |
|---|---|---|---|---|---|---|---|---|
| 6271-024 / CLP FORMS | 200093950 | Solid | 26-SEP-94 09:20 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3* | R2922-019 |

| # | Container Type | Analysis | Class | Preservative | Anal. Due Date | Hold Date | Site | (Container Numbers:% Filled) |
|---|---|---|---|---|---|---|---|---|
| 1 | AN - Amber Glass-500ml | HG/7470/Q4 | S | COLD | 21-OCT-94 | 24-OCT-94 | S7B | (101993:100) |
| 1 | | ICAP/6010/Q4 | S | COLD | 21-OCT-94 | 25-MAR-95 | S7B | (101993:100) |
| 1 | | PM/1T/Q4 | S | COLD | 26-OCT-94 | 25-MAR-95 | S7B | (101993:100) |

3*=Sample has not been rad screened.

**Quanterra**
Environmental Services

007211

C.U.R. and C.O.C.
COPIED TO: DK & KC
DATE: 9-29-94
TIME: 11:20
BY: 2m

Work Order No.: 6271

# Condition Upon Receipt Variance Report
## St. Louis Laboratory

Release 4052

ient: Fermco
Date: 9-29-94 08:45
oject No: 500.01
Initiated by: Joel Mitchell
alysis Requested: Refer to RFA/COC
RFA/COC Numbers: SPL-94-6209
ient Sample Numbers Affected: Entire Login

ndition/Variance (Check all that apply): Circle Number to Denote that Item was Evaluated. "NA" = "Not Applicable".

1. NA Not enough sample received for proper analysis.
Received approximately: _____
2. ☐ Sample received broken/leaking.
3. ☐ Sample received without proper preservative.
☐ Cooler temperature not within 4°C ± 2°C
Record temperature: 5°C/6°C
☐ pH _____
☐ other: _____
4. ☐ Sample received in improper container.
5. ☐ Sample received without proper paperwork. Explain:
_____
6. ☐ Paperwork received without sample.
7. ☐ No sample ID on sample container.
8. ☐ Custody tape disturbed/broken/missing.
9. NA Sample splits performed by lab.
10. NA Volatile sample received with approximately _____ mm headspace.
11. ☐ Sample ID on container does not match sample ID on paperwork. Explain:
_____
12. ☐ All coolers on airbill not received with shipment.
13. ☐ Other (explain below):
Shipping containers not rad survered.

otes: 200093928 is improperly preserved w/ $HNO_3$.
Do not use it for HERBS per client, use 200093929 instead.
SW 09/30/94

orrective Action:

☐ Client's Name: _____ Informed verbally on: _____ By: _____
☐ Client's Name: _____ Informed in writing on: _____ By: _____

☐ Sample(s) processed "as is". Comments: _____
☐ Sample(s) on hold until: _____ If released, notify: _____

mple Control Supervisor Review: (or designate) _____ Date: _____
oject Management Review: K R Ciampelli Date: 9-29-94

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

ITAS - St. Louis

# CONVERSATION RECORD

| TIME | DATE | PROJECT NO. |
|---|---|---|
| 9:51 | 11-14-94 | 500.01 |

TYPE ☐ VISIT ☐ CONFERENCE ☒ TELEPHONE ☐ INCOMING ☐ OUTGOING

ROUTING NAME/SYMBOL

Location of Visit/Conference:

| NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU | ORGANIZATION (Office, dept., bureau, etc.) | TELEPHONE NO. |
|---|---|---|
| M. Sorensen | Fermco | |

SUBJECT

SUMMARY

CLI

Rel. 4491 pH for metals = 7. Process "as is"

PCB not logged in from BNA container

~~Sample~~ - insufficient sample received.

Analysis done from 40 ml vial w/ inserts

DL's. Per M. Sorensen submit results

"as is."

ACTION REQUIRED

none

| NAME OF PERSON DOCUMENTING CONVERSATION | SIGNATURE | DATE |
|---|---|---|
| | K L Kiesselbach | 11-14-94 |

ACTION TAKEN

| SIGNATURE | TITLE | DATE |
|---|---|---|
| | | |

Page ____ of ____

000639

Date: 10-05-94
To : Don Hesse
From: Bob White/Kathy Giacopelli

Per client request, please add the following Table 4 (VOA8240) compounds to Table 5 for the following releases and samples:

Chloroform
1,2 Dichloroethane
1,1 Dichloroethylene
Vinyl Chloride

Release 3975

| Client ID | Quanterra ID |
|---|---|
| 200093966 | 6172-004 |
| 200093997 | 6172-006 |
| 200094002 | 6172-010 |

Release 4052

| Client ID | Quanterra ID |
|---|---|
| 200093930 | 6271-001 |
| 200093935 | 6271-006 |
| 200093940 | 6271-009 |
| 200093953 | 6271-018 |

Release 4096

| Client ID | Quanterra ID |
|---|---|
| 200093914 | 6342-010 |
| 200093922 | 6342-011 |
| 200094018 | 6342-012 |
| 200094024 | 6342-013 |

# QUANTERRA ENVIRONMENTAL SERVICES

## ST. LOUIS, MO

FAX TRANSMISSION

FAXED

| | |
|---|---|
| TO: Mainerd Sorensen | |
| COMPANY: FERMCO | |
| FAX NUMBER: 513-738-6667 | |
| SENDER: Kathy Giacopelli | |
| DATE: 09/29/94 | OPERATOR: KGB |
| TIME: | NUMBER OF PAGES: (INCLUDES COVER) 5 |

St. Louis Laboratory
Fax Number: (314) 298-8757
If You Experience Trouble, Call (314) 298-8566

Quanterra.....Subcontract No. 434285..... Project 500.01

Confirmation of Sample Receipt and Condition Upon Receipt for:

Release 4052

000641

# CONVERSATION RECORD

| TIME | DATE | PROJECT NO. |
|---|---|---|
| | 9-29-94 | 500.01 |

TYPE: ☐ VISIT ☐ CONFERENCE ☒ TELEPHONE ☐ INCOMING ☒ OUTGOING

Location of Visit/Conference:

ROUTING: NAME/SYMBOL | INT

| NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU | ORGANIZATION (Office, dept., bureau, etc.) | TELEPHONE NO. |
|---|---|---|
| Meinerd Sorensen | FERMCO | |

SUBJECT

Release 4052

SUMMARY

Request for Table 40 for two samples of C matrix (const. material), what water quality parameters do they need?

p. 2 item 3

p. 3 item 1

Meinerd said they need pH only on those two samples.

p. 1 item 6 is a matrix A, and is a tripblank.

ACTION REQUIRED

| NAME OF PERSON DOCUMENTING CONVERSATION | SIGNATURE | DATE |
|---|---|---|
| | Robert E. White | 9/29/94 |

ACTION TAKEN

| SIGNATURE | TITLE | DATE |
|---|---|---|
| | | |

Page ___ of ___

Fernald Environmental

FERMCO

Restoration Management Corporation

FERMCO
P. O. Box 398704
Cincinnati, OH 45239-8704

**FACSIMILE LEAD SHEET**

No. of Pages: 2
Including Lead Sheet

DATE: September 29, 1994

TO: Robert White

COMPANY NAME: Quanterra - St.Louis

LOCATION: Earth City, Missouri

FAX NO. TO BE CALLED: (314) 298-8757 TELEPHONE NO.: (314) 298-8566

FROM: Mainerd Sørensen TELEPHONE NO.: (513) 738-9239

PROJECT NAME: FERNALD ENVIRONMENTAL MGMT CONTRACT NO.: DE-AC05-920R21972

**MESSAGE**

SUBJECT: Release 4052; Sample Plan 04.48 (Detrex Still)

Bob (& Kathy):

The specific analysis requested under table 40 for sample Nºs 200093947 & 200093959 is Ph. Sample Nº 200093935 is a trip blank. Thank you for bringing these items to my attention.

Three sample points and one trip blank for this project are currently in our SPL, being prepared for shipment tomorrow.

Thanks

Mainerd Sørensen

MRS:mrs

Attachment

cc: File Record Storage Copy 106.4.10.5

# QUANTERRA ENVIRONMENTAL SERVICES

FAXED

## ST. LOUIS, MO

FAX TRANSMISSION

| | |
|---|---|
| TO: Mainerd Sorensen | |
| COMPANY: FERMCO | |
| FAX NUMBER: 513-738-6667 | |
| SENDER: Kathy Giacopelli | |
| DATE: 09/~~29~~ 30/94 | OPERATOR: KG |
| TIME: 8:09 | NUMBER OF PAGES: (INCLUDES COVER) 1 |

St. Louis Laboratory
Fax Number: (314) 298-8757
If You Experience Trouble, Call (314) 298-8566

Quanterra.....Subcontract No. 434285..... Project 500.01

Release 4052

As stated on the OCTR sample 200093928 for Herbicides was received preserved - Process "as is"?

To: Don Hesse

From: Bob White

Date: 9/30/94

500.01

LOGIN 6271-004 for HERB has been cancelled. before login was released.

C: org. prep.

To: Don Hesse
From: Bob White/Kathy Giacopelli

Date: October 11, 1994

Even though hold time have expired extract from sample container of the same location. Do not use the extract from the 40 ml vials extracted.

Analyze the PCB/8080 from the one gallon BNA containers for the following samples:

| DO NOT USE | | USE INSTEAD | |
|---|---|---|---|
| 200093933 | 6271-002 | 200093929 | 6271-005 |
| 200093917 | 6342-014 | 200093913 | 6342-007 |
| 200093925 | 6342-015 | 200093921 | 6342-008 |
| 200094022 | 6342-016 | 200094017 | 6342-009 |

For PEST/8080 analysis for sample 200096770 (6199-005) run at 9 or 10 grams "as is" per client

~~Samples 200093933 was not logged in for PCB's the analysis.~~

PCB's were not logged in for Sample 200093929. The 40 ml vials ~~received~~ were analyzed for PCB's even though insufficient volume was received and BL's are raised considerably. The hold times had expired. No PCB's were found in Sample.

per Dale Bilzer
11-11-94

ITAS - St. Louis

LF 6271

# CONVERSATION RECORD

| TIME | DATE | PROJECT NO |
|---|---|---|
| | 10-07-94 | 500.0 |

TYPE ☐ VISIT ☐ CONFERENCE ☒ TELEPHONE ☒ INCOMING ☐ OUTGOING

ROUTING

NAME/SYMBOL

Location of Visit/Conference:

| NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU | ORGANIZATION (Office, dept., bureau, etc.) | TELEPHONE NO. |
|---|---|---|
| Mainerd Sorensen | FERINCO | |

SUBJECT

FAX concerning insufficient samples releases

SUMMARY

Even though hold times have expired, extract from sample container of the same location.

Do not use the extract from the 40 mL vials extracted

ACTION REQUIRED

| NAME OF PERSON DOCUMENTING CONVERSATION | SIGNATURE | DATE |
|---|---|---|
| | Robert E. White | 10-07-94 |

ACTION TAKEN

| SIGNATURE | TITLE | DATE |
|---|---|---|
| | | |

Page ____ of ____

000647

Quanterra Environmental Services

# ST. LOUIS, MO

FAX TRANSMISSION

| | | | |
|---|---|---|---|
| TO: | Mainerd Sorensen | | |
| COMPANY: | FERMCO | | |
| FAX NUMBER: | 513-738-6667 | | |
| SENDER: | Bob White | | |
| DATE: 10/06/94 | | OPERATOR: REW | |
| TIME: 2:20 | FAXED | NUMBER OF PAGES: 1 (INCLUDES COVER) | |

St. Louis Laboratory

Fax Number: (314) 298-8757

If You Experience Trouble, Call (314) 298-8566

Subcontract Number 434285.....FERMCO Project 500.01

Analysis request of Table 22 (PCB8080) for the following samples:

200093933 (6271-002) Release 4052

200093917 (6342-014) Release 4096
200093925 (6342-015) Release 4096
200094022 (6342-016) Release 4096

were submitted with 1 X 40 mL vial for analysis. The matrix is specified as "A", and has insufficient volume to perform matrix QC. One liter is required for this analysis. The detection limits will increase X 250. Should we proceed with these analyses?

Release 4002, Sample 200096770 (6199-005), matrix B, was submitted for Tables 10 and 12 (Pest & Herb). The sample was extracted for Table 12 (Herb) which requires 50 g. and only about 9 g. of sample remains. Not enough sample remains for the Table 10 (Pest) extraction.

Please advise the lab. on how to proceed with the analyses for the samples listed above.

Date: 10-05-94
To : Don Hesse
From: Bob White/Kathy Giacopelli

Per client request, please add the following Table 4 (VOA8240) compounds to Table 5 for the following releases and samples:

Chloroform
1,2 Dichloroethane
1,1 Dichloroethylene
Vinyl Chloride

Release 4052

| Client ID | Quanterra ID |
|---|---|
| 200093930 | 6271-001 |
| 200093935 | 6271-006 |
| 200093940 | 6271-009 |
| 200093953 | 6271-018 |

Release 4096

| | |
|---|---|
| 200093914 | 6342-010 |
| 200093922 | 6342-011 |
| 200094018 | 6342-012 |
| 200094024 | 6342-013 |

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052_____

SOW No.: SW846

| EPA Sample No. | Lab Sample ID |
|---|---|
| _200093927____ | _6271-003_____ |
| _200093937____ | _6271-015_____ |
| _200093950____ | _6271-024_____ |

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES

If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Robert E. White Name: Robert E. White

Date: Nov. 16, 1994 Title: Project Manager

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

200093937

Lab Name: ITAS_ST._LOUIS Contract: 500.01

Lab Code: ITMO Case No.: SAS No.: SDG No.: 4052

Matrix (soil/water): SOIL Lab Sample ID: 6271-015

Level (low/med): Date Received: 09/29/94

% Solids: 97.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic | 33.7 | B | | P |
| 7440-39-3 | Barium | 76.0 | | | P |
| 7440-43-9 | Cadmium | 16.3 | | | P |
| 7440-47-3 | Chromium | 96.7 | | | P |
| 7439-92-1 | Lead | 76.8 | | | P |
| 7439-97-6 | Mercury | 0.06 | B | | CV |
| 7782-49-2 | Selenium | 38.1 | | | P |
| 7440-22-4 | Silver | 5.1 | | | P |

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

FORM I - IN

SW-846

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

200093927

Name: ITAS_ST._LOUIS Contract: 500.01
Code: ITMO Case No.: SAS No.: SDG No.: 4052
:ix (soil/water): WATER Lab Sample ID: 6271-003
el (low/med): Date Received: 09/29/94
olids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Field Blank

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic | 45.6 | U | | P |
| 7440-39-3 | Barium | 1.0 | U | | P |
| 7440-43-9 | Cadmium | 1.5 | U | | P |
| 7440-47-3 | Chromium | 5.3 | U | | P |
| 7439-92-1 | Lead | 32.4 | U | | P |
| 7439-97-6 | Mercury | 0.10 | U | | CV |
| 7782-49-2 | Selenium | 41.9 | U | | P |
| 7440-22-4 | Silver | 3.8 | U | | P |

or Before: Clarity Before: Texture:
or After: Clarity After: Artifacts:

ments:

FORM I - IN

SW-846

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

200093950

Lab Name: ITAS_ST._LOUIS Contract: 500.01

Lab Code: ITMO Case No.: SAS No.: SDG No.: 4052

Matrix (soil/water): SOIL Lab Sample ID: 6271-024

Level (low/med): Date Received: 09/29/94

% Solids: 97.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic | 35.1 | B | | P |
| 7440-39-3 | Barium | 81.9 | | | P |
| 7440-43-9 | Cadmium | 14.9 | | | P |
| 7440-47-3 | Chromium | 82.1 | | | P |
| 7439-92-1 | Lead | 67.4 | | | P |
| 7439-97-6 | Mercury | 0.05 | B | | CV |
| 7782-49-2 | Selenium | 30.7 | | | P |
| 7440-22-4 | Silver | 5.1 | | | P |

(concrete)

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

FORM I - IN

SW-846

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052_____

Initial Calibration Source: SOL/L/SPX/IC

Continuing Calibration Source: SOL+/LL/SPX_

Concentration Units: ug/L

| Analyte | Initial Calibration True | Initial Calibration Found | Initial Calibration %R(1) | Continuing Calibration True | Continuing Calibration Found | Continuing Calibration %R(1) | Continuing Calibration Found | Continuing Calibration %R(1) | M |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 4000.0 | 4110.91 | 102.8 | 4000.0 | 4029.55 | 100.7 | 4099.47 | 102.5 | P |
| Barium | 4000.0 | 3808.57 | 95.2 | 4000.0 | 3715.17 | 92.9 | 3676.32 | 91.9 | P |
| Cadmium | 4000.0 | 3875.14 | 96.9 | 4000.0 | 3829.49 | 95.7 | 3799.95 | 95.0 | P |
| Chromium | 4000.0 | 3836.50 | 95.9 | 4000.0 | 3800.44 | 95.0 | 3784.82 | 94.6 | P |
| Lead | 4000.0 | 3909.90 | 97.7 | 4000.0 | 3890.54 | 97.3 | 3838.01 | 96.0 | P |
| Mercury | 6.0 | 5.88 | 98.0 | 4.0 | 4.03 | 100.8 | 4.04 | 101.0 | CV |
| Selenium | 4000.0 | 3983.15 | 99.6 | 4000.0 | 3899.12 | 97.5 | 3876.63 | 96.9 | P |
| Silver | 1000.0 | 974.54 | 97.5 | 1000.0 | 974.91 | 97.5 | 969.45 | 96.9 | P |

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

SW-846

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052_____

Initial Calibration Source: SOL/L/SPX/IC

Continuing Calibration Source: SOL+/LL/SPX_

Concentration Units: ug/L

| Analyte | Initial Calibration True | Initial Calibration Found | Initial Calibration %R(1) | Continuing Calibration True | Continuing Calibration Found | Continuing Calibration %R(1) | Continuing Calibration Found | Continuing Calibration %R(1) |
|---|---|---|---|---|---|---|---|---|
| Arsenic | | | | 4000.0 | 4076.11 | 101.9 | | |
| Barium | | | | 4000.0 | 3689.09 | 92.2 | | |
| Cadmium | | | | 4000.0 | 3838.26 | 96.0 | | |
| Chromium | | | | 4000.0 | 3815.49 | 95.4 | | |
| Lead | | | | 4000.0 | 3892.53 | 97.3 | | |
| Mercury | | | | 4.0 | 4.06 | 101.5 | 4.06 | 101.5 |
| Selenium | | | | 4000.0 | 3932.56 | 98.3 | | |
| Silver | | | | 1000.0 | 971.69 | 97.2 | | |

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

SW-84

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052_____

:ial Calibration Source: SOL/L/SPX/IC

:inuing Calibration Source: SOL+/LL/SPX_

Concentration Units: ug/L

| ılyte | Initial Calibration True | Initial Calibration Found | Initial Calibration %R(1) | Continuing Calibration True | Continuing Calibration Found | Continuing Calibration %R(1) | Continuing Calibration Found | Continuing Calibration %R(1) | M |
|---|---|---|---|---|---|---|---|---|---|
| senic | 4000.0 | 4156.08 | 103.9 | 4000.0 | 4310.97 | 107.8 | 4336.02 | 108.4 | P |
| rium | 4000.0 | 3740.46 | 93.5 | 4000.0 | 3806.29 | 95.2 | 3805.22 | 95.1 | P |
| dmium | 4000.0 | 3862.25 | 96.6 | 4000.0 | 3938.43 | 98.5 | 3953.87 | 98.8 | P |
| romium | 4000.0 | 3839.31 | 96.0 | 4000.0 | 3902.82 | 97.6 | 3924.20 | 98.1 | P |
| ad | 4000.0 | 3885.42 | 97.1 | 4000.0 | 3911.53 | 97.8 | 3912.26 | 97.8 | P |
| rcury | 6.0 | 6.42 | 107.0 | 4.0 | 4.[illegible] | 115.2 | 4.50 | 112.5 | CV |
| lenium | 4000.0 | 3889.68 | 97.2 | 4000.0 | 3995.08 | 99.9 | 4095.11 | 102.4 | P |
| lver | 1000.0 | 971.47 | 97.1 | 1000.0 | 974.18 | 97.4 | 978.90 | 97.9 | P |

Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

SW-846

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 4052_____

AA CRDL Standard Source: SPX/SOL+/LL_

ICP CRDL Standard Source: SOL+/SPX____

Concentration Units: ug/L

| Analyte | CRDL Standard for AA | | | CRDL Standard for ICP | | | | |
|---|---|---|---|---|---|---|---|---|
| | True | Found | %R | True | Initial Found | %R | Final Found | %R |
| Arsenic | | | | | | | | |
| Barium | | | | | | | | |
| Cadmium | | | | | | | | |
| Chromium | | | | | | | | |
| Lead | | | | | | | | |
| Mercury | 0.2 | 0.24 | 120.0 | | | | | |
| Selenium | | | | | | | | |
| Silver | | | | | | | | |

FORM II (PART 2) - IN

SW-846

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 4052_____

AA CRDL Standard Source: SPX/SOL+/LL_

ICP CRDL Standard Source: SOL+/SPX____

Concentration Units: ug/L

| Analyte | CRDL Standard for AA | | | CRDL Standard for ICP | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Initial | | Final | |
| | True | Found | %R | True | Found | %R | Found | %R |
| Arsenic | | | | | | | | |
| Barium | | | | | | | | |
| Cadmium | | | | | | | | |
| Chromium | | | | | | | | |
| Lead | | | | | | | | |
| Mercury | 0.2 | 0.22 | 110.0 | | | | | |
| Selenium | | | | | | | | |
| Silver | | | | | | | | |

FORM II (PART 2) - IN

SW-846

U.S. EPA - CLP

3
BLANKS

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052_____

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

| Analyte | Initial Calib. Blank (ug/L) | C | Continuing Calibration Blank (ug/L) 1 | C | 2 | C | 3 | C | Prepa-ration Blank | C | N |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 45.6 | U | 45.6 | U | 45.6 | U | 45.6 | U | 45.600 | U | P |
| Barium | 1.0 | U | 1.0 | U | 1.0 | U | 1.0 | U | 1.000 | U | P |
| Cadmium | 3.0 | B | 2.7 | B | 1.9 | B | 2.2 | B | 2.460 | B | P |
| Chromium | 5.3 | U | 5.3 | U | 5.3 | U | 5.3 | U | 5.300 | U | P |
| Lead | 32.4 | U | 32.4 | U | 32.4 | U | 32.4 | U | 32.400 | U | P |
| Mercury | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.100 | U | C |
| Selenium | 41.9 | U | 43.8 | B | 41.9 | U | 41.9 | U | 41.900 | U | P |
| Silver | 3.8 | U | 3.8 | U | 3.8 | U | 3.8 | U | 3.800 | U | P |

FORM III - IN

SW-84

U.S. EPA - CLP

3
BLANKS

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052_____

Preparation Blank Matrix (soil/water): SOIL_

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

| Analyte | Initial Calib. Blank (ug/L) | C | Continuing Calibration Blank (ug/L) 1 | C | 2 | C | 3 | C | Prepa-ration Blank | C | M |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 46.6 | B | 45.6 | U | 69.8 | B | | | 4.560 | U | P |
| Barium | 1.0 | U | 1.0 | U | 1.0 | U | | | 0.100 | U | P |
| Cadmium | 1.5 | U | 1.5 | U | 1.5 | U | | | 0.150 | U | P |
| Chromium | 5.3 | U | 5.3 | U | 5.3 | U | | | 0.530 | U | P |
| Lead | 32.4 | U | 32.4 | U | 32.4 | U | | | 3.240 | U | P |
| Mercury | | | 0.1 | U | | | | | 0.050 | U | CV |
| Selenium | 41.9 | U | 41.9 | U | 41.9 | U | | | 4.190 | U | P |
| Silver | 3.8 | U | 3.8 | U | 3.8 | U | | | 0.380 | U | P |

FORM III - IN

SW-846

U.S. EPA - CLP

3
BLANKS

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052_____

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

| Analyte | Initial Calib. Blank (ug/L) | C | Continuing Calibration Blank (ug/L) 1 | C | 2 | C | 3 | C | Prepa-ration Blank | C | I |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | | | | | | | | | | | N |
| Barium | | | | | | | | | | | N |
| Cadmium | | | | | | | | | | | N |
| Chromium | | | | | | | | | | | N |
| Lead | | | | | | | | | | | N |
| Mercury | 0.1 | U | 0.1 | U | 0.1 | U | | | | | C |
| Selenium | | | | | | | | | | | N |
| Silver | | | | | | | | | | | N |

FORM III - IN

SW-84

U.S. EPA - CLP

4

ICP INTERFERENCE CHECK SAMPLE

Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Code: ITMO__Case No.: _____ SAS No: _____ SDG No.: 4052_____

ID Number: TJA9000_____ ICS Source: SOL+/SPX____

Concentration Units: ug/L

| Analyte | True Sol. A | True Sol. AB | Initial Found Sol. A | Initial Found Sol. AB | %R | Final Found Sol. A | Final Found Sol. AB | %R |
|---|---|---|---|---|---|---|---|---|
| rsenic | 0 | 0 | 933 | 873.5 | | 876 | 946.7 | |
| arium | 0 | 500 | 5 | 470.3 | 94.1 | 5 | 474.0 | 94.8 |
| admium | 0 | 1000 | 38 | 938.2 | 93.8 | 38 | 953.8 | 95.4 |
| hromium | 0 | 500 | -2 | 447.5 | 89.5 | -1 | 451.3 | 90.3 |
| ead | 0 | 1000 | -23 | 903.2 | 90.3 | -15 | 938.7 | 93.9 |
| ercury | | | | | | | | |
| elenium | 0 | 0 | 124 | 140.0 | | 93 | 125.6 | |
| ilver | 0 | 1000 | 21 | 1007.8 | 100.8 | 21 | 1008.1 | 100.8 |

FORM IV - IN

SW-846

U.S. EPA - CLP

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__Case No.: _____ SAS No: _____ SDG No.: 4052_____

ICP ID Number: TJA9000_____ ICS Source: SOL+/SPX____

Concentration Units: ug/L

| Analyte | True Sol. A | True Sol. AB | Initial Found Sol. A | Initial Found Sol. AB | Initial Found %R | Final Found Sol. A | Final Found Sol. AB | Final Found %R |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 0 | 0 | 741 | 807.6 | | 774 | 814.6 | |
| Barium | 0 | 500 | 6 | 470.2 | 94.0 | 5 | 457.9 | 91.6 |
| Cadmium | 0 | 1000 | 41 | 932.6 | 93.3 | 42 | 924.7 | 92.5 |
| Chromium | 0 | 500 | -6 | 434.6 | 86.9 | -10 | 437.2 | 87.4 |
| Lead | 0 | 1000 | -23 | 920.6 | 92.1 | 11 | 903.0 | 90.3 |
| Mercury | | | | | | | | |
| Selenium | 0 | 0 | 102 | 140.9 | | 129 | 137.3 | |
| Silver | 0 | 1000 | 26 | 1008.1 | 100.8 | 23 | 1001.0 | 100.1 |

FORM IV - IN

SW-846

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

200094007S

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 3975_____

Matrix (soil/water): SOIL__ Level (low/med): _____

% Solids for Sample: _89.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

| Analyte | Control Limit %R | Spiked Sample Result (SSR) | C | Sample Result (SR) | C | Spike Added (SA) | %R | Q | M |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 75-125 | 115.5862 | | 5.8732 | U | 111.23 | 103.9 | | P |
| Barium | 75-125 | 271.5818 | | 40.9143 | | 222.47 | 103.7 | | P |
| Cadmium | 75-125 | 14.9244 | | 8.1991 | | 5.56 | 121.0 | | P |
| Chromium | | 180.6096 | | 494.8810 | | 22.25 | -1412.5 | | P |
| Lead | | 414.8432 | | 296.3560 | | 55.62 | 213.0 | | P |
| Mercury | 75-125 | 0.5439 | | 0.0556 | J | 0.56 | 97.1 | | CV |
| Selenium | 75-125 | 103.1513 | | 6.8298 | U | 111.23 | 92.7 | | P |
| Silver | 75-125 | 3.5328 | | 0.4116 | U | 5.56 | 63.5 | N | P |

Comments:

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

200094007D

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No._____ SAS No._____ SDG No.: 3975___

Matrix (soil/water): SOIL_ Level (low/med): ____

% Solids for Sample: _89.9 % Solids for Duplicate: __89

Concentration Units (ug/L or mg/kg dry weight): MG/KG

| Analyte | Control Limit | Sample (S) | C | Duplicate (D) | C | RPD | Q | M |
|---|---|---|---|---|---|---|---|---|
| Arsenic | | 5.8732 | U | 5.8732 | U | | - | P |
| Barium | 22.2 | 40.9143 | - | 51.7475 | - | 23.4 | - | P |
| Cadmium | | 8.1991 | - | 9.0456 | - | 9.8 | - | P |
| Chromium | | 494.8810 | - | 277.6863 | - | 56.2 | * | P |
| Lead | | 296.3560 | - | 375.9499 | - | 23.7 | * | P |
| Mercury | | 0.0556 | U | 0.1062 | B | 200.0 | - | CV |
| Selenium | | 6.8298 | U | 6.8298 | U | | - | P |
| Silver | | 0.4116 | U | 0.4116 | U | | - | P |

FORM VI - IN

SW-846

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052_____

Solid LCS Source: ERA_____

Aqueous LCS Source: SOL+_____

| Analyte | Aqueous (ug/L) True | Found | %R | Solid (mg/kg) True | Found | C | Limits | | %R |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 1000.0 | 1174.62 | 117.5 | 72.1 | 92.0 | | 35.0 | 110.0 | 127.6 |
| Barium | 1000.0 | 986.40 | 98.6 | 64.8 | 66.4 | | 45.0 | 88.0 | 102.5 |
| Cadmium | 1000.0 | 1069.28 | 106.9 | 61.6 | 69.1 | | 36.0 | 86.0 | 112.2 |
| Chromium | 1000.0 | 1039.04 | 103.9 | 44.1 | 47.1 | | 26.0 | 61.0 | 106.8 |
| Lead | 1000.0 | 1078.52 | 107.9 | 50.9 | 55.9 | | 27.0 | 71.0 | 109.8 |
| Mercury | | | | | | | | | |
| Selenium | 1000.0 | 1096.25 | 109.6 | 74.2 | 82.2 | | 36.0 | 108.0 | 110.8 |
| Silver | 250.0 | 185.17 | 74.1 | 71.7 | 59.6 | | 29.0 | 105.0 | 83.1 |

FORM VII - IN

SW-846

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052_____

Solid LCS Source: ERA_____

Aqueous LCS Source: SOL+_____

| Analyte | Aqueous (ug/L) True | Found | %R | Solid (mg/kg) True | Found | C | Limits | | %R |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | | | | | | | | | |
| Barium | | | | | | | | | |
| Cadmium | | | | | | | | | |
| Chromium | | | | | | | | | |
| Lead | | | | | | | | | |
| Mercury | 3.0 | 3.02 | 100.7 | 32.0 | 34.4 | | 17.0 | 48.0 | 107.! |
| Selenium | | | | | | | | | |
| Silver | | | | | | | | | |

FORM VII - IN

SW-846

U.S. EPA - CLP

8
STANDARD ADDITION RESULTS

Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052_____

Concentration Units: ug/L

| EPA Sample No. | An | 0 ADD ABS | 1 ADD CON | 1 ADD ABS | 2 ADD CON | 2 ADD ABS | 3 ADD CON | 3 ADD ABS | Final Conc. | r | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |

FORM VIII - IN SW-846

U.S. EPA - CLP

10
Instrument Detection Limits (Quarterly)

Lab Name: ITAS_ST._LOUIS
Lab Code: ITMO Case No.:
ICP ID Number: TJA9000
Flame AA ID Number :
Furnace AA ID Number :

Contract: 500.01
SAS No.: SDG No.: 4052
Date: 10/01/94

| Analyte | Wave-length (nm) | Back-ground | CRDL (ug/L) | IDL (ug/L) | M |
|---|---|---|---|---|---|
| Arsenic | 193.70 | | 500 | 45.6 | P |
| Barium | 493.40 | | 200 | 1.0 | P |
| Cadmium | 226.50 | | 5 | 1.5 | P |
| Chromium | 267.72 | | 20 | 5.3 | P |
| Lead | 220.35 | | 100 | 32.4 | P |
| Mercury | | | 0.2 | | NR |
| Selenium | 196.03 | | 250 | 41.9 | P |
| Silver | 328.07 | | 10 | 3.8 | P |

Comments:

FORM X - IN SW-846

U.S. EPA - CLP

10
Instrument Detection Limits (Quarterly)

Lab Name: ITAS_ST._LOUIS
Lab Code: ITMO Case No.:
ICP ID Number:
Flame AA ID Number : PS200
Furnace AA ID Number :

Contract: 500.01
SAS No.: SDG No.: 4052
Date: 10/01/94

| Analyte | Wave-length (nm) | Back-ground | CRDL (ug/L) | IDL (ug/L) | M |
|---|---|---|---|---|---|
| Arsenic | | | 500 | | NR |
| Barium | | | 200 | | NR |
| Cadmium | | | 5 | | NR |
| Chromium | | | 20 | | NR |
| Lead | | | 100 | | NR |
| Mercury | 253.70 | | 0.2 | 0.1 | CV |
| Selenium | | | 250 | | NR |
| Silver | | | 10 | | NR |

Comments:

FORM X - IN

SW-846

U.S. EPA - CLP

11A
ICP Interelement Correction Factors (Annually)

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052_____

ICP ID Number: TJA9000_____ Date: 03/28/94

| Analyte | Wave-length (nm) | Interelement Correction Factors for : Al | Ca | Fe | Mg | NA |
|---|---|---|---|---|---|---|
| Arsenic | 193.70 | 0.0047500 | 0.0000000 | 0.0002900 | 0.0000000 | 0.0000000 |
| Barium | 493.40 | 0.0000000 | 0.0000000 | 0.0000000 | 0.0000000 | 0.0000000 |
| Cadmium | 226.50 | 0.0000100 | 0.0000000 | 0.0001400 | 0.0000000 | 0.0000000 |
| Chromium | 267.72 | 0.0000000 | -0.0000400 | 0.0000500 | -0.0000100 | 0.0000000 |
| Lead | 220.35 | 0.0009600 | -0.0000300 | 0.0000000 | 0.0000000 | 0.0000000 |
| Mercury | | | | | | |
| Selenium | 196.03 | 0.0000000 | 0.0000000 | 0.0003900 | 0.0000000 | 0.0000000 |
| Silver | 328.07 | 0.0000000 | -0.0000100 | -0.0002500 | -0.0000200 | 0.0000100 |

Comments:

FORM XI (Part 1) - IN SW-846

U.S. EPA - CLP

12
ICP LINEAR RANGES (QUARTERLY)

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052_____

ICP ID Number:TJA9000_____ Date: 10/01/94

| Analyte | Integ. Time (sec.) | Concentration (ug/L) | M |
|---|---|---|---|
| Arsenic | 5.00 | 100000.0 | P |
| Barium | 5.00 | 100000.0 | P |
| Cadmium | 5.00 | 50000.0 | P |
| Chromium | 5.00 | 100000.0 | P |
| Lead | 5.00 | 20000.0 | P |
| Mercury | | | NR |
| Selenium | 5.00 | 100000.0 | P |
| Silver | 5.00 | 10000.0 | P |

Comments:

FORM XII - IN SW-846

U.S. EPA - CLP

13
PREPARATION LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052_____

Method: P_

| EPA Sample No. | Preparation Date | Weight (gram) | Volume (mL) |
|---|---|---|---|
| 200093927 | 10/17/94 | | 100 |
| LCSW48453 | 10/17/94 | | 100 |
| PBW48453 | 10/17/94 | | 100 |

FORM XIII - IN SW-846

U.S. EPA - CLP

13
PREPARATION LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052_____

Method: P_

| EPA Sample No. | Preparation Date | Weight (gram) | Volume (mL) |
|---|---|---|---|
| 200093937 | 10/19/94 | 1.00 | 100 |
| 200093950 | 10/19/94 | 1.00 | 100 |
| LCSS48761 | 10/19/94 | 1.00 | 100 |
| PBS48761 | 10/19/94 | 1.00 | 100 |

FORM XIII - IN SW-846

U.S. EPA - CLP

13
PREPARATION LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052_____

Method: CV

| EPA Sample No. | Preparation Date | Weight (gram) | Volume (mL) |
|---|---|---|---|
| 200093927 | 10/17/94 | | 100 |
| LCSW48476 | 10/17/94 | | 100 |
| PBW48476 | 10/17/94 | | 100 |

FORM XIII - IN SW-846

U.S. EPA - CLP

13
PREPARATION LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052_____

Method: CV

| EPA Sample No. | Preparation Date | Weight (gram) | Volume (mL) |
|---|---|---|---|
| 200093937 | 10/20/94 | 0.20 | 100 |
| 200093950 | 10/20/94 | 0.20 | 100 |
| LCSS48801 | 10/20/94 | 0.20 | 100 |
| PBS48801 | 10/20/94 | 0.20 | 100 |

FORM XIII - IN SW-846

U.S. EPA - CLP

14

ANALYSIS RUN LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052_____

Instrument ID Number: TJA9000_____ Method: P_

Start Date: 10/17/94 End Date: 10/17/94

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | |
| S0 | 1.00 | 1709 | | X | X | X | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S | 1.00 | 1713 | | X | X | X | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S | 1.00 | 1716 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S | 1.00 | 1719 | | | | | | | | | | | | | | | | | | | | | | | |
| S | 1.00 | 1721 | | X | X | X | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S | 1.00 | 1724 | | | | | | | | | | | | | | | | | | | | | | | |
| ICV | 1.00 | 1727 | | X | X | X | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ICB | 1.00 | 1730 | | X | X | X | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ICSA | 1.00 | 1733 | | X | X | X | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ICSAB | 1.00 | 1736 | | X | X | X | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PBW48453 | 1.00 | 1739 | | X | X | X | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| LCSW48453 | 1.00 | 1742 | | X | X | X | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1745 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1748 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1751 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1754 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1757 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1759 | | | | | | | | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 1802 | | X | X | X | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCB | 1.00 | 1805 | | X | X | X | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1808 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1811 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1814 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1817 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1820 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1823 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1826 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1829 | | | | | | | | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 1832 | | X | X | X | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCB | 1.00 | 1835 | | X | X | X | X | X | - | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1838 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1841 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

FORM XIV - IN SW-846

U.S. EPA - CLP

14

# ANALYSIS RUN LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052_____

Instrument ID Number: TJA9000_____ Method: P_

Start Date: 10/17/94 End Date: 10/17/94

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | | | |
| 200093927 | 1.00 | 1844 | | X | X | X | X | X | _ | X | X | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| ICSA | 1.00 | 1847 | | X | X | X | X | X | _ | X | X | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| ICSAB | 1.00 | 1850 | | X | X | X | X | X | _ | X | X | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| CCV | 1.00 | 1852 | | X | X | X | X | X | _ | X | X | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |
| CCB | 1.00 | 1855 | | X | X | X | X | X | _ | X | X | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ | _ |

FORM XIV - IN SW-846

U.S. EPA - CLP

14

ANALYSIS RUN LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052_____

Instrument ID Number: TJA9000_____ Method: P_

Start Date: 10/20/94 End Date: 10/20/94

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | |
| S0 | 1.00 | 0904 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| S | 1.00 | 0908 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| S | 1.00 | 0911 | | | | | | | | | | | | | | | | | | | | | | | |
| S | 1.00 | 0914 | | | | | | | | | | | | | | | | | | | | | | | |
| S | 1.00 | 0917 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| S | 1.00 | 0919 | | | | | | | | | | | | | | | | | | | | | | | |
| ICV | 1.00 | 0922 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| ICB | 1.00 | 0926 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| ICSA | 1.00 | 0929 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| ICSAB | 1.00 | 0932 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| PBS48761 | 1.00 | 0953 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| LCSS48761 | 1.00 | 0956 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| 200093937 | 1.00 | 0959 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| 200093950 | 1.00 | 1002 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1005 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1008 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1011 | | | | | | | | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 1014 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| CCB | 1.00 | 1016 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1019 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1022 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 5.00 | 1025 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 5.00 | 1028 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 5.00 | 1031 | | | | | | | | | | | | | | | | | | | | | | | |
| ICSA | 1.00 | 1034 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| ICSAB | 1.00 | 1037 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| CCV | 1.00 | 1040 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| CCB | 1.00 | 1043 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
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FORM XIV - IN SW-846

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052_____

Instrument ID Number: PS200_____ Method: CV

Start Date: 10/17/94 End Date: 10/17/94

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | | | |
| S0 | 1.00 | 1615 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| S0.5 | 1.00 | 1617 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| S1 | 1.00 | 1620 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| S2 | 1.00 | 1622 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| S5 | 1.00 | 1625 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| S10 | 1.00 | 1628 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| ICV | 1.00 | 1631 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| ICB | 1.00 | 1633 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| CRA | 1.00 | 1635 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 1638 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| CCB | 1.00 | 1640 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| PBW48476 | 1.00 | 1642 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| LCSW48476 | 1.00 | 1644 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1647 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1649 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1651 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1653 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1655 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1657 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1700 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1702 | | | | | | | | | | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 1704 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| CCB | 1.00 | 1706 | | | | | | | X | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1709 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1711 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1713 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1715 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1717 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1719 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1721 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1723 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1725 | | | | | | | | | | | | | | | | | | | | | | | | | |

FORM XIV - IN SW-846

U.S. EPA - CLP

14

ANALYSIS RUN LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052_____

Instrument ID Number: PS200_____ Method: CV

Start Date: 10/17/94 End Date: 10/17/94

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1727 | | | | | | | | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 1729 | | | | | | | X | | | | | | | | | | | | | | | | |
| CCB | 1.00 | 1732 | | | | | | | X | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1734 | | | | | | | | | | | | | | | | | | | | | | | |
| 200093927 | 1.00 | 1736 | | | | | | | X | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1738 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1740 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1742 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1744 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1746 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1748 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1750 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1753 | | | | | | | | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 1755 | | | | | | | X | | | | | | | | | | | | | | | | |
| CCB | 1.00 | 1757 | | | | | | | X | | | | | | | | | | | | | | | | |

FORM XIV - IN SW-846

U.S. EPA - CLP

14

ANALYSIS RUN LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.01____

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052_____

Instrument ID Number: PS200_____ Method: CV

Start Date: 10/20/94 End Date: 10/20/94

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | | | |
| S0 | 1.00 | 2006 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S0.5 | 1.00 | 2008 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S1 | 1.00 | 2010 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S2 | 1.00 | 2013 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S5 | 1.00 | 2015 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S10 | 1.00 | 2018 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ICV | 1.00 | 2021 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ICB | 1.00 | 2023 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CRA | 1.00 | 2026 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCV | 1.00 | 2028 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCB | 1.00 | 2030 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PBS48801 | 1.00 | 2033 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| LCSS48801 | 10.0 | 2035 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 2037 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 2040 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 2043 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 2045 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 2048 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 200093937 | 1.00 | 2050 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 200093950 | 1.00 | 2052 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 2054 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCV | 1.00 | 2057 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCB | 1.00 | 2059 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

FORM XIV - IN SW-846

1A

# VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO

200093930

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V27101 SDG No.: 4052

Matrix: (soil/water) WATER Lab Sample ID: 6271-001

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: E1032

Level: (low/med) LOW Date Received: 09/29/94

% Moisture: not dec. Date Analyzed: 10/07/94

Column: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-09-2 | Methylene Chloride | 2 | BJ |
| 67-64-1 | Acetone | 16 | BJ |
| 75-69-4 | Trichlorofluoromethane | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 5 | U |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 5 | U |
| 67-66-3 | Chloroform | 2 | J |
| 107-06-2 | 1,2-Dichlorethane | 5 | U |
| 78-93-3 | 2-Butanone | 100 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 50 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 108-88-3 | Toluene | 5 | U |
| 108-90-7 | Chlorobenzene | 5 | U |
| 100-41-4 | Ethylbenzene | 5 | U |
| 1330-20-7 | Xylene (total) | 5 | U |
| 108-94-1 | Cyclohexanone | 150 | U |
| 141-78-6 | Ethyl Acetate | 20 | U |
| 60-29-7 | Diethyl Ether | 20 | U |

EPA SAMPLE NO.

200093935

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V27101 SDG No.: 4052

Matrix: (soil/water) WATER Lab Sample ID: 6271-006

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: E1033

Level: (low/med) LOW Date Received: 09/29/94

% Moisture: not dec. Date Analyzed: 10/07/94

Column: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-09-2 | Methylene Chloride | 2 | BJ |
| 67-64-1 | Acetone | 100 | U |
| 75-69-4 | Trichlorofluoromethane | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 5 | U |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichlorethane | 5 | U |
| 78-93-3 | 2-Butanone | 100 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 50 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 108-88-3 | Toluene | 5 | U |
| 108-90-7 | Chlorobenzene | 5 | U |
| 100-41-4 | Ethylbenzene | 5 | U |
| 1330-20-7 | Xylene (total) | 5 | U |
| 108-94-1 | Cyclohexanone | 150 | U |
| 141-78-6 | Ethyl Acetate | 20 | U |
| 60-29-7 | Diethyl Ether | 20 | U |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE N

200093940

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V27101 SDG No.: 4052

Matrix: (soil/water) SOIL Lab Sample ID: 6271-009

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B0531

Level: (low/med) LOW Date Received: 09/29/94

% Moisture: not dec. 3 Date Analyzed: 10/10/94

Column: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-09-2 | Methylene Chloride | 5 | U |
| 67-64-1 | Acetone | 28 | BJ |
| 75-69-4 | Trichlorofluoromethane | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 5 | U |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichlorethane | 5 | U |
| 78-93-3 | 2-Butanone | 100 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 70 | |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 52 | U |
| 127-18-4 | Tetrachloroethene | 6 | |
| 108-88-3 | Toluene | 1 | J |
| 108-90-7 | Chlorobenzene | 5 | U |
| 100-41-4 | Ethylbenzene | 5 | U |
| 1330-20-7 | Xylene (total) | 5 | U |
| 108-94-1 | Cyclohexanone | 150 | U |
| 141-78-6 | Ethyl Acetate | 21 | U |
| 60-29-7 | Diethyl Ether | 21 | U |

EPA SAMPLE NO.

200093953

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V27101 SDG No.: 4052

Matrix: (soil/water) SOIL Lab Sample ID: 6271-018

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B0532

Level: (low/med) LOW Date Received: 09/29/94

% Moisture: not dec. 2 Date Analyzed: 10/10/94

Column: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-09-2 | Methylene Chloride | 5 | U |
| 67-64-1 | Acetone | 27 | BJ |
| 75-69-4 | Trichlorofluoromethane | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 5 | U |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichlorethane | 5 | U |
| 78-93-3 | 2-Butanone | 100 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 72 | |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 51 | U |
| 127-18-4 | Tetrachloroethene | 5 | J |
| 108-88-3 | Toluene | 1 | J |
| 108-90-7 | Chlorobenzene | 5 | U |
| 100-41-4 | Ethylbenzene | 5 | U |
| 1330-20-7 | Xylene (total) | 5 | U |
| 108-94-1 | Cyclohexanone | 150 | U |
| 141-78-6 | Ethyl Acetate | 20 | U |
| 60-29-7 | Diethyl Ether | 20 | U |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE N

VBLK01

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V27101 SDG No.: 4052

Matrix: (soil/water) WATER Lab Sample ID: QCBLK47648

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: E1030

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 10/07/94

Column: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-09-2 | Methylene Chloride | 2 | J |
| 67-64-1 | Acetone | 9 | J |
| 75-69-4 | Trichlorofluoromethane | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 5 | U |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichlorethane | 5 | U |
| 78-93-3 | 2-Butanone | 100 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 50 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 108-88-3 | Toluene | 5 | U |
| 108-90-7 | Chlorobenzene | 5 | U |
| 100-41-4 | Ethylbenzene | 5 | U |
| 1330-20-7 | Xylene (total) | 5 | U |
| 108-94-1 | Cyclohexanone | 150 | U |
| 141-78-6 | Ethyl Acetate | 20 | U |
| 60-29-7 | Diethyl Ether | 20 | U |

EPA SAMPLE NO.

VSPK01

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V27101 SDG No.: 4052

Matrix: (soil/water) WATER Lab Sample ID: QCSPK47648

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: E1031

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 10/07/94

Column: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-09-2 | Methylene Chloride | 3 | BJ |
| 67-64-1 | Acetone | 3 | BJ |
| 75-69-4 | Trichlorofluoromethane | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 52 | |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichlorethane | 5 | U |
| 78-93-3 | 2-Butanone | 100 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 79-01-6 | Trichloroethene | 51 | |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 51 | |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 50 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 108-88-3 | Toluene | 48 | |
| 108-90-7 | Chlorobenzene | 49 | |
| 100-41-4 | Ethylbenzene | 5 | U |
| 1330-20-7 | Xylene (total) | 5 | U |
| 108-94-1 | Cyclohexanone | 150 | U |
| 141-78-6 | Ethyl Acetate | 20 | U |
| 60-29-7 | Diethyl Ether | 20 | U |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE

VBLK02

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V27101 SDG No.: 4052

Matrix: (soil/water) SOIL Lab Sample ID: QCBLK47789

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B0529

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 10/10/94

Column: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-09-2 | Methylene Chloride | 5 | U |
| 67-64-1 | Acetone | 11 | J |
| 75-69-4 | Trichlorofluoromethane | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 5 | U |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichlorethane | 5 | U |
| 78-93-3 | 2-Butanone | 100 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 79-01-6 | Trichloroethene | 5 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 5 | U |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 50 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 108-88-3 | Toluene | 5 | U |
| 108-90-7 | Chlorobenzene | 5 | U |
| 100-41-4 | Ethylbenzene | 5 | U |
| 1330-20-7 | Xylene (total) | 5 | U |
| 108-94-1 | Cyclohexanone | 150 | U |
| 141-78-6 | Ethyl Acetate | 20 | U |
| 60-29-7 | Diethyl Ether | 20 | U |

EPA SAMPLE NO.

VSPK02

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V27101 SDG No.: 4052

Matrix: (soil/water) SOIL Lab Sample ID: QCSPK47789

Sample wt/vol: 5.00 (g/mL) G Lab File ID: B0530

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 10/10/94

Column: (pack/cap) CAP Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 75-01-4 | Vinyl Chloride | 10 | U |
| 75-09-2 | Methylene Chloride | 5 | U |
| 67-64-1 | Acetone | 9 | BJ |
| 75-69-4 | Trichlorofluoromethane | 10 | U |
| 75-15-0 | Carbon Disulfide | 5 | U |
| 75-35-4 | 1,1-Dichloroethene | 51 | |
| 76-13-1 | 1,1,2-Trichlorotrifluoroethan | 5 | U |
| 67-66-3 | Chloroform | 5 | U |
| 107-06-2 | 1,2-Dichlorethane | 5 | U |
| 78-93-3 | 2-Butanone | 100 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 5 | U |
| 56-23-5 | Carbon Tetrachloride | 5 | U |
| 79-01-6 | Trichloroethene | 47 | |
| 79-00-5 | 1,1,2-Trichloroethane | 5 | U |
| 71-43-2 | Benzene | 47 | |
| 75-25-2 | Bromoform | 5 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 50 | U |
| 127-18-4 | Tetrachloroethene | 5 | U |
| 108-88-3 | Toluene | 43 | |
| 108-90-7 | Chlorobenzene | 48 | |
| 100-41-4 | Ethylbenzene | 5 | U |
| 1330-20-7 | Xylene (total) | 5 | U |
| 108-94-1 | Cyclohexanone | 150 | U |
| 141-78-6 | Ethyl Acetate | 20 | U |
| 60-29-7 | Diethyl Ether | 20 | U |

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V27101 SDG No.: 4052

| | EPA SAMPLE NO. | S1 (TOL) # | S2 (BFB) # | S3 (DCE) # | OTHER | TOT OUT |
|---|---|---|---|---|---|---|
| 01 | 200093930 | 100 | 99 | 98 | 0 | 0 |
| 02 | 200093935 | 100 | 102 | 97 | 0 | 0 |
| 03 | VSPK01 | 97 | 96 | 101 | 0 | 0 |
| 04 | VBLK01 | 98 | 96 | 95 | 0 | 0 |

| | | QC LIMITS |
|---|---|---|
| S1 (TOL) | = Toluene-d8 | ( 88-110) |
| S2 (BFB) | = Bromofluorobenzene | ( 86-115) |
| S3 (DCE) | = 1,2-Dichloroethane-d4 | ( 76-114) |

# Column to be used to flag recovery values

• Values outside of contract required QC limits

D Surrogates diluted out

2B
SOIL VOLATILE SURROGATE RECOVERY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V27101 SDG No.: 4052

Level:(low/med) LOW

| | EPA SAMPLE NO. | S1 (TOL) # | S2 (BFB) # | S3 (DCE) # | OTHER | TOT OUT |
|---|---|---|---|---|---|---|
| 01 | 200093940 | 102 | 87 | 107 | 0 | 0 |
| 02 | 200093953 | 100 | 89 | 107 | 0 | 0 |
| 03 | VSPK02 | 95 | 96 | 99 | 0 | 0 |
| 04 | VBLK02 | 94 | 97 | 97 | 0 | 0 |

| | | QC LIMITS |
|---|---|---|
| S1 (TOL) | = Toluene-d8 | ( 81-117) |
| S2 (BFB) | = Bromofluorobenzene | ( 74-121) |
| S3 (DCE) | = 1,2-Dichloroethane-d4 | ( 70-121) |

# Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

# TCLP VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V17214 SDG No.: 3975

Matrix Spike - EPA Sample No.: 200094010

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE CONCENTRATION (ug/L) | MS CONCENTRATION (ug/L) | MS % REC # | L |
|---|---|---|---|---|---|
| Vinyl Chloride | 200 | 0 | 200 | 102 | |
| 1,1-Dichloroethene | 700 | 0 | 750 | 107 | |
| Chloroform | 700 | 0 | 830 | 119 | 5 |
| 1,2-Dichloroethane | 500 | 48 | 670 | 125 | 4 |
| 2-Butanone | 700 | 570 | 1600 | 144 | 2 |
| Carbon Tetrachloride | 500 | 0 | 640 | 128 | 7 |
| Trichloroethene | 500 | 32 | 630 | 120 | 7 |
| Benzene | 500 | 0 | 600 | 119 | 3 |
| Tetrachloroethene | 700 | 14 | 860 | 121 | 6 |
| Chlorobenzene | 700 | 0 | 860 | 123 | 3 |

| COMPOUND | SPIKE ADDED (ug/L) | MSD CONCENTRATION (ug/L) | MSD % REC # | % RPD | QC LIM RPD | |
|---|---|---|---|---|---|---|
| Vinyl Chloride | 200 | 180 | 92 | 10 | - | |
| 1,1-Dichloroethene | 700 | 730 | 104 | 3 | - | |
| Chloroform | 700 | 800 | 114 | 4 | - | 5 |
| 1,2-Dichloroethane | 500 | 640 | 120 | 4 | - | 4 |
| 2-Butanone | 700 | 1500 | 136 | 6 | - | 2 |
| Carbon Tetrachloride | 500 | 640 | 128 | 0 | - | 7 |
| Trichloroethene | 500 | 640 | 121 | 1 | - | 7 |
| Benzene | 500 | 600 | 121 | 2 | - | 3 |
| Tetrachloroethene | 700 | 850 | 119 | 2 | - | 6 |
| Chlorobenzene | 700 | 840 | 120 | 2 | - | 3 |

\# Column to be used to flag recovery values with an asterisk.
* Values outside of QC limits.
D Detected.
NG: Not Given. Determined by QC Charting Procedures.

Spike Recovery: 0 out of 20 outside limits

FORM III VOA

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V27101 SDG No.: 4052

Lab File ID: B0529 Lab Sample ID: QCBLK47789

Date Analyzed: 10/10/94 Time Analyzed: 1048

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: MSB

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | TIME ANALYZED |
|---|---|---|---|---|
| 01 | 200093940 | 6271-009 | B0531 | 1211 |
| 02 | 200093953 | 6271-018 | B0532 | 1244 |
| 03 | VSPK02 | QCSPK47789 | B0530 | 1137 |

COMMENTS:

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V27101 SDG No.: 4052

Lab File ID: E1030 Lab Sample ID: QCBLK47648

Date Analyzed: 10/07/94 Time Analyzed: 1026

Matrix: (soil/water) WATER Level:(low/med) LOW

Instrument ID: MSE

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | TIME ANALYZED |
|---|---|---|---|---|
| 01 | 200093930 | 6271-001 | E1032 | 1154 |
| 02 | 200093935 | 6271-006 | E1033 | 1225 |
| 03 | VSPK01 | QCSPK47648 | E1031 | 1123 |

COMMENTS:

9A-LCS
VOA SOIL LCS RECOVERY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V27101 SAS No.: SDG No.: 4052

EPA Sample No.: VSPK02 Level:(low/med) LOW

| COMPOUND | SPIKE ADDED (ug/Kg) | LCS CONCENTRATION (ug/Kg) | LCS % REC # | QC LIMITS REC. |
|---|---|---|---|---|
| 1,1-Dichloroethene | 50 | 51 | 102 | 1-234 |
| Trichloroethene | 50 | 47 | 94 | 71-157 |
| Benzene | 50 | 47 | 94 | 37-151 |
| Toluene | 50 | 43 | 86 | 47-150 |
| Chlorobenzene | 50 | 48 | 97 | 37-160 |

\# Column to be used to flag recovery values with an asterisk.
* Values outside of QC limits.
D Detected.
NG: Not Given. Determined by QC Charting Procedures.

9A-LCS
VOA WATER LCS RECOVERY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: V27101 SAS No.: SDG No.: 4052

EPA Sample No.: VSPK01 Level:(low/med) LOW

| COMPOUND | SPIKE ADDED (ug/L) | LCS CONCENTRATION (ug/L) | LCS % REC # | QC LIMITS REC. |
|---|---|---|---|---|
| 1,1-Dichloroethene | 50 | 52 | 104 | 1-234 |
| Trichloroethene | 50 | 51 | 103 | 71-157 |
| Benzene | 50 | 51 | 102 | 37-151 |
| Toluene | 50 | 48 | 96 | 47-150 |
| Chlorobenzene | 50 | 49 | 98 | 37-160 |

# Column to be used to flag recovery values with an asterisk.
* Values outside of QC limits.
D Detected.
NG: Not Given. Determined by QC Charting Procedures.

FORM IX VO-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200093929

.b Name: ITAS-ST.LOUIS Contract: 500-01

.b Code: ITSL Case No.: S27105 SAS No.: SDG No.: 4052

.trix: (soil/water) WATER Lab Sample ID: 6271-005

.mple wt/vol: 1000 (g/mL) ML Lab File ID: D6057

:vel: (low/med) LOW Date Received: 09/29/94

Moisture: not dec. dec. Date Extracted: 10/03/94

:traction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10/23/94

'C Cleanup: (Y/N) N pH: Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 10 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 | U |
| 95-48-7 | 2-Methylphenol | 10 | U |
| 106-44-5 | 4-Methylphenol | 10 | U |
| 67-72-1 | Hexachloroethane | 10 | U |
| 98-95-3 | Nitrobenzene | 10 | U |
| 87-68-3 | Hexachlorobutadiene | 10 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 10 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 10 | U |
| 118-74-1 | Hexachlorobenzene | 10 | U |
| 87-86-5 | Pentachlorophenol | 50 | U |

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE

200093939

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S27105 SAS No.: SDG No.: 4052

Matrix: (soil/water) SOIL Lab Sample ID: 6271-008

Sample wt/vol: 30.20 (g/mL) G Lab File ID: H1195

Level: (low/med) LOW Date Received: 09/29/94

% Moisture: not dec. 2 dec. Date Extracted: 10/10/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 10/26/94

GPC Cleanup: (Y/N) N pH: Dilution Factor: 25

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 8400 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 8400 | U |
| 95-48-7 | 2-Methylphenol | 8400 | U |
| 106-44-5 | 4-Methylphenol | 9900 | |
| 67-72-1 | Hexachloroethane | 8400 | U |
| 98-95-3 | Nitrobenzene | 8400 | U |
| 87-68-3 | Hexachlorobutadiene | 8400 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 8400 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 8400 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 8400 | U |
| 118-74-1 | Hexachlorobenzene | 8400 | U |
| 87-86-5 | Pentachlorophenol | 41000 | U |

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200093952

b Name: ITAS-ST.LOUIS Contract: 500-01

b Code: ITSL Case No.: S27105 SAS No.: SDG No.: 4052

trix: (soil/water) SOIL Lab Sample ID: 6271-017

mple wt/vol: 30.40 (g/mL) G Lab File ID: H1196

vel: (low/med) LOW Date Received: 09/29/94

Moisture: not dec. 2 dec. Date Extracted: 10/10/94

traction: (SepF/Cont/Sonc) SONC Date Analyzed: 10/26/94

C Cleanup: (Y/N) N pH: Dilution Factor: 25

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 8300 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 8300 | U |
| 95-48-7 | 2-Methylphenol | 8300 | U |
| 106-44-5 | 4-Methylphenol | 6100 | J |
| 67-72-1 | Hexachloroethane | 8300 | U |
| 98-95-3 | Nitrobenzene | 8300 | U |
| 87-68-3 | Hexachlorobutadiene | 8300 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 8300 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 8300 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 8300 | U |
| 118-74-1 | Hexachlorobenzene | 8300 | U |
| 87-86-5 | Pentachlorophenol | 40000 | U |

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE

SBLK01

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S27105 SAS No.: SDG No.: 4052

Matrix: (soil/water) WATER Lab Sample ID: QCBLK47186

Sample wt/vol: 1000 (g/mL) ML Lab File ID: D6055

Level: (low/med) LOW Date Received:

% Moisture: not dec. dec. Date Extracted: 10/03/94

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10/23/94

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 10 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 | U |
| 95-48-7 | 2-Methylphenol | 10 | U |
| 106-44-5 | 4-Methylphenol | 10 | U |
| 67-72-1 | Hexachloroethane | 10 | U |
| 98-95-3 | Nitrobenzene | 10 | U |
| 87-68-3 | Hexachlorobutadiene | 10 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 10 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 10 | U |
| 118-74-1 | Hexachlorobenzene | 10 | U |
| 87-86-5 | Pentachlorophenol | 50 | U |

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSPK01

ab Name: ITAS-ST.LOUIS Contract: 500-01

ab Code: ITSL Case No.: S27105 SAS No.: SDG No.: 4052

atrix: (soil/water) WATER Lab Sample ID: QCSPK47186

ample wt/vol: 1000 (g/mL) ML Lab File ID: D6056

evel: (low/med) LOW Date Received:

Moisture: not dec. dec. Date Extracted: 10/03/94

xtraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10/23/94

PC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 10 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 36 | |
| 95-48-7 | 2-Methylphenol | 10 | U |
| 106-44-5 | 4-Methylphenol | 10 | U |
| 67-72-1 | Hexachloroethane | 10 | U |
| 98-95-3 | Nitrobenzene | 10 | U |
| 87-68-3 | Hexachlorobutadiene | 10 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 10 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 35 | |
| 118-74-1 | Hexachlorobenzene | 10 | U |
| 87-86-5 | Pentachlorophenol | 73 | |

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE

SBLK02

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S27105 SAS No.: SDG No.: 4052

Matrix: (soil/water) SOIL Lab Sample ID: QCBLK47784

Sample wt/vol: 30.00 (g/mL) G Lab File ID: H1188

Level: (low/med) LOW Date Received:

% Moisture: not dec. dec. Date Extracted: 10/10/94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 10/26/94

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.00

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 330 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 330 | U |
| 95-48-7 | 2-Methylphenol | 330 | U |
| 106-44-5 | 4-Methylphenol | 330 | U |
| 67-72-1 | Hexachloroethane | 330 | U |
| 98-95-3 | Nitrobenzene | 330 | U |
| 87-68-3 | Hexachlorobutadiene | 330 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 330 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 330 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 330 | U |
| 118-74-1 | Hexachlorobenzene | 330 | U |
| 87-86-5 | Pentachlorophenol | 1600 | U |

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SSPK02

.b Name: ITAS-ST.LOUIS Contract: 500-01

.b Code: ITSL Case No.: S27105 SAS No.: SDG No.: 4052

.trix: (soil/water) SOIL Lab Sample ID: QCSPK47784

mple wt/vol: 30.00 (g/mL) G Lab File ID: H1189

vel: (low/med) LOW Date Received:

Moisture: not dec. dec. Date Extracted: 10/10/94

:traction: (SepF/Cont/Sonc) SONC Date Analyzed: 10/26/94

'C Cleanup: (Y/N) N pH: Dilution Factor: 1.00

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 990 | |
| 106-46-7 | 1,4-Dichlorobenzene | 1900 | |
| 95-48-7 | 2-Methylphenol | 2000 | |
| 106-44-5 | 4-Methylphenol | 3700 | E |
| 67-72-1 | Hexachloroethane | 1400 | |
| 98-95-3 | Nitrobenzene | 1600 | |
| 87-68-3 | Hexachlorobutadiene | 1800 | |
| 88-06-2 | 2,4,6-Trichlorophenol | 2200 | |
| 95-95-4 | 2,4,5-Trichlorophenol | 2300 | |
| 121-14-2 | 2,4-Dinitrotoluene | 410 | |
| 118-74-1 | Hexachlorobenzene | 510 | |
| 87-86-5 | Pentachlorophenol | 1300 | J |

2D
SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S27105 SAS No.: SDG No.: 4052

Level: (low/med) LOW

| | EPA SAMPLE NO. | S1 (NBZ) # | S2 (FBP) # | S3 (TPH) # | S4 (PHL) # | S5 (2FP) # | S6 (TBP) # | OTHER | TOT OUT |
|---|---|---|---|---|---|---|---|---|---|
| 01 | 200093939 | 72 | 88 | 97 | 52 | 0 D | 0 D | 0 | 0 |
| 02 | 200093952 | 63 | 95 | 96 | 48 | 0 D | 0 D | 0 | 0 |
| 03 | SSPK02 | 67 | 81 | 84 | 83 | 58 | 78 | 0 | 0 |
| 04 | SBLK02 | 92 | 102 | 96 | 96 | 70 | 82 | 0 | 0 |

| | | QC LIMITS |
|---|---|---|
| S1 (NBZ) | = Nitrobenzene-d5 | ( 23-120) |
| S2 (FBP) | = 2-Fluorobiphenyl | ( 30-115) |
| S3 (TPH) | = Terphenyl | ( 18-137) |
| S4 (PHL) | = Phenol-d5 | ( 24-113) |
| S5 (2FP) | = 2-Fluorophenol | ( 25-121) |
| S6 (TBP) | = 2,4,6-Tribromophenol | ( 19-122) |

# Column to be used to flag recovery values
• Values outside of contract required QC limits
D Surrogates diluted out

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S27105 SAS No.: SDG No.: 4052

| | EPA SAMPLE NO. | S1 (NBZ) # | S2 (FBP) # | S3 (TPH) # | S4 (PHL) # | S5 (2FP) # | S6 (TBP) # | OTHER | TOT OUT |
|---|---|---|---|---|---|---|---|---|---|
| 01 | 200093929 | 73 | 72 | 82 | 31 | 41 | 68 | 0 | 0 |
| 02 | SSPK01 | 71 | 69 | 79 | 70 | 68 | 69 | 0 | 0 |
| 03 | SBLK01 | 75 | 70 | 81 | 75 | 71 | 68 | 0 | 0 |

| | | QC LIMITS |
|---|---|---|
| S1 (NBZ) | = Nitrobenzene-d5 | ( 35-114) |
| S2 (FBP) | = 2-Fluorobiphenyl | ( 43-116) |
| S3 (TPH) | = Terphenyl | ( 33-141) |
| S4 (PHL) | = Phenol-d5 | ( 10-94 ) |
| S5 (2FP) | = 2-Fluorophenol | ( 21-100) |
| S6 (TBP) | = 2,4,6-Tribromophenol | ( 10-123) |

# Column to be used to flag recovery values
• Values outside of contract required QC limits
D Surrogates diluted out

# SOIL TCLP SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVER

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S17203 SDG No.: 3975

Matrix Spike - EPA Sample No.: 200094001

| COMPOUND | SPIKE ADDED (ug/Kg) | SAMPLE CONCENTRATION (ug/Kg) | MS CONCENTRATION (ug/Kg) | MS % REC # | L |
|---|---|---|---|---|---|
| Pyridine | 250000 | 0 | 0 | 0 * | 16 |
| 1,4-Dichlorobenzene | 250000 | 0 | 19000 | 76 | 20 |
| 2-Methylphenol | 250000 | 0 | 23000 | 91 | 37 |
| 4-Methylphenol (1) | 500000 | 5500 | 46000 | 91 | 26 |
| Hexachloroethane | 250000 | 0 | 18000 | 74 | 40 |
| Nitrobenzene | 250000 | 0 | 20000 | 79 | 35 |
| Hexachlorobutadiene | 250000 | 0 | 20000 | 81 | 24 |
| 2,4,6-Trichlorophenol | 250000 | 0 | 26000 | 106 | 37 |
| 2,4,5-Trichlorophenol | 250000 | 0 | 23000 | 92 | 47 |
| 2,4-Dinitrotoluene | 65000 | 0 | 5500 | 84 | 39 |
| Hexachlorobenzene | 65000 | 0 | 5000 | 77 | 1 |
| Pentachlorophenol | 250000 | 0 | 31000 | 126 | 14 |

| COMPOUND | SPIKE ADDED (ug/Kg) | MSD CONCENTRATION (ug/Kg) | MSD % REC # | % RPD | QC LIMI RPD | R |
|---|---|---|---|---|---|---|
| Pyridine | 250000 | 0 | 0 * | 0 | - | 16 |
| 1,4-Dichlorobenzene | 250000 | 14000 | 56 | 30 | - | 20 |
| 2-Methylphenol | 250000 | 21000 | 83 | 9 | - | 37 |
| 4-Methylphenol (1) | 500000 | 44000 | 87 | 4 | - | 26 |
| Hexachloroethane | 250000 | 14000 | 56 | 28 | - | 40 |
| Nitrobenzene | 250000 | 17000 | 70 | 12 | - | 35 |
| Hexachlorobutadiene | 250000 | 17000 | 70 | 14 | - | 24 |
| 2,4,6-Trichlorophenol | 250000 | 25000 | 100 | 6 | - | 37 |
| 2,4,5-Trichlorophenol | 250000 | 22000 | 90 | 2 | - | 47 |
| 2,4-Dinitrotoluene | 65000 | 4700 | 73 | 14 | - | 39 |
| Hexachlorobenzene | 65000 | 4600 | 71 | 8 | - | 1 |
| Pentachlorophenol | 250000 | 28000 | 113 | 11 | - | 14 |

\# Column to be used to flag recovery values with an asterisk.
* Values outside of QC limits.
D Detected.
NG: Not Given. Determined by QC Charting Procedures.

(1) 4-Methylphenol and 3-Methylphenol co-elute.
Spike added is the total of equal portions of each.

Spike Recovery: 2 out of 24 outside limits

FORM III BNA

4B

# SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S27105 SAS No.: SDG No.: 4052

Lab File ID: D6055 Lab Sample ID: QCBLK47186

Date Extracted: 10/03/94 Extraction:(SepF/Cont/Sonc) SEPF

Date Analyzed: 10/23/94 Time Analyzed: 2044

Matrix: (soil/water) WATER Level:(low/med) LOW

Instrument ID: MSD

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED |
|---|---|---|---|---|
| 01 | 200093929 | 6271-005 | D6057 | 10/23/94 |
| 02 | SSPK01 | QCSPK47186 | D6056 | 10/23/94 |

COMMENTS:

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S27105 SAS No.: SDG No.: 4052

Lab File ID: H1188 Lab Sample ID: QCBLK47784

Date Extracted: 10/10/94 Extraction:(SepF/Cont/Sonc) SO

Date Analyzed: 10/26/94 Time Analyzed: 0920

Matrix: (soil/water) SOIL Level:(low/med) LOW

Instrument ID: MSH

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED |
|---|---|---|---|---|
| 01 | 200093939 | 6271-008 | H1195 | 10/26/94 |
| 02 | 200093952 | 6271-017 | H1196 | 10/26/94 |
| 03 | SSPK02 | QCSPK47784 | H1189 | 10/26/94 |

COMMENTS:

9C-LCS
WATER SEMIVOLATILE LCS RECOVERY

Name: ITAS-ST.LOUIS Contract: 500-01

Code: ITSL Case No.: S27105 SAS No.: SDG No.: 4052

Sample No.: SSPK01 Level:(low/med) LOW

| COMPOUND | SPIKE ADDED (ug/L) | LCS CONCENTRATION (ug/L) | LCS % REC # | QC LIMITS REC. |
|---|---|---|---|---|
| Phenol | 100 | 68 | 68 | 5-112 |
| 2-Chlorophenol | 100 | 68 | 68 | 23-134 |
| 1,4-Dichlorobenzene | 50 | 36 | 73 | 19-121 |
| N-Nitroso-Di-n-Propylamine | 50 | 37 | 75 | 1-209 |
| 1,2,4-Trichlorobenzene | 50 | 32 | 65 | 43-142 |
| 4-Chloro-3-Methylphenol | 100 | 62 | 62 | 22-147 |
| Acenaphthene | 50 | 34 | 69 | 50-142 |
| 4-Nitrophenol | 100 | 69 | 69 | 1-132 |
| 2,4-Dinitrotoluene | 50 | 35 | 70 | 33-132 |
| Pentachlorophenol | 100 | 73 | 73 | 14-176 |
| Pyrene | 50 | 40 | 79 | 52-116 |

Column to be used to flag recovery values with an asterisk.
Values outside of QC limits.
Detected.

9B-LCS
BNA SOIL LCS RECOVERY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S27105 SAS No.: SDG No.: 4052

EPA Sample No.: SSPK02 Level:(low/med) LOW

| COMPOUND | SPIKE ADDED (ug/Kg) | LCS CONCENTRATION (ug/Kg) | LCS % REC # | QC LIMITS REC. |
|---|---|---|---|---|
| Pyridine | 2100 | 990 | 48 | 16- 82 |
| 1,4-Dichlorobenzene | 2100 | 1900 | 90 | 20-124 |
| 2-Methylphenol | 2100 | 2000 | 95 | 37-126 |
| 4-Methylphenol (1) | 4200 | 3700 | 88 | 26-108 |
| Hexachloroethane | 2100 | 1400 | 70 | 40-113 |
| Nitrobenzene | 2100 | 1600 | 78 | 35-180 |
| Hexachlorobutadiene | 2100 | 1800 | 87 | 24-116 |
| 2,4,6-Trichlorophenol | 2100 | 2200 | 106 | 37-144 |
| 2,4,5-Trichlorophenol | 2100 | 2300 | 109 | 47-117 |
| 2,4-Dinitrotoluene | 540 | 410 | 76 | 39-139 |
| Hexachlorobenzene | 540 | 510 | 94 | 1-152 |
| Pentachlorophenol | 2100 | 1300 | 63 | 14-176 |

\# Column to be used to flag recovery values with an asterisk.
* Values outside of QC limits.
D Detected.
NG: Not Given. Determined by QC Charting Procedures.

(1) 4-Methylphenol and 3-Methylphenol co-elute; spike added reflects 500 ug/L of each.

1H
HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
200093929

Name: ITAS-St. Louis Contract: 500.01

Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4052

ix: (soil/water) WATER Lab Sample ID: 6271-005

le wt/vol: 1000 (g/ml) ML Lab File ID: _____

l: (low/med) LOW Date Sampled: 10-26-94

isture: not dec. _____ dec. _____ Date Extracted: 10-03-94

action: (SepF/Cont/Shak/Sox/ Sonc/SPE) SEPF Date Analyzed: 10-19-94

Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

| CAS NO. | Compound | | Q |
|---|---|---|---|
| 94-75-7 | 2,4-D | 12 | U |
| 93-72-1 | 2,4,5-TP | 1.7 | U |

Concentration of analyte is less than the value given.

FORM I HERB

1H

HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200093938

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4052

Matrix: (soil/water) SOIL Lab Sample ID: 6271-007

Sample wt/vol: 50.0 (g/ml) G Lab File ID: _____

Level: (low/med) LOW Date Sampled: 09-26-94

% Moisture: not dec. 2 dec. _____ Date Extracted: 10-03-94

Extraction: (SepF/Cont/Shak/Sox/ Sonc/SPE) SHAKER Date Analyzed: 10-19-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg | Q |
|---|---|---|---|
| 94-75-7 | 2,4-D | 240 | U |
| 93-72-1 | 2,4,5-TP | 35 | U |

U: Concentration of analyte is less than the value given.

Total Herb
Concrete

FORM I HERB

1H
HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HBLK01

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4052

Matrix: (soil/water) SOIL Lab Sample ID: BLK 47122

Sample wt/vol: 50.0 (g/ml) G Lab File ID: _____

Level: (low/med) LOW Date Sampled: _____

% Moisture: not dec. _____ dec. _____ Date Extracted: 10-03-94

Extraction: (SepF/Cont/Shak/Sox/ Sonc/SPE) SHAKER Date Analyzed: 10-19-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

| CAS NO. | Compound | | Q |
|---|---|---|---|
| 94-75-7 | 2,4-D | 240 | U |
| 93-72-1 | 2,4,5-TP | 34 | U |

U: Concentration of analyte is less than the value given.

FORM I HERB

1H

HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HSPK01

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4052

Matrix: (soil/water) SOIL Lab Sample ID: SPK 47122

Sample wt/vol: 50.0 (g/ml) G Lab File ID: _____

Level: (low/med) LOW Date Sampled: _____

% Moisture: not dec. _____ dec. _____ Date Extracted: 10-03-94

Extraction: (SepF/Cont/Shak/Sox/ Sonc/SPE) SHAKER Date Analyzed: 10-19-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

| CAS NO. | Compound | | Q |
|---|---|---|---|
| 94-75-7 | 2,4-D | 290 | |
| 93-72-1 | 2,4,5-TP | 22 | J |

U: Concentration of analyte is less than the value given.

FORM I HERB

1H
HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HBLK02

) Name: ITAS-St. Louis Contract: 500.01

) Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4052

:rix: (soil/water) WATER Lab Sample ID: BLK 47123

mple wt/vol: 1000 (g/ml) ML Lab File ID: _____

vel: (low/med) LOW Date Sampled: _____

Moisture: not dec._____ dec._____ Date Extracted: 10-03-94

:raction: (SepF/Cont/Shak/Sox/ Sonc/SPE) SEPF Date Analyzed: 10-19-94

: Cleanup: (Y/N) N pH:_____ Dilution Factor: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

| CAS NO. | Compound | | Q |
|---|---|---|---|
| 94-75-7 | 2,4-D | 12 | U |
| 93-72-1 | 2,4,5-TP | 1.7 | U |

Concentration of analyte is less than the value given.

FORM I HERB

1H

HERBICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HSPK02

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4052

Matrix: (soil/water) WATER Lab Sample ID: SPK 47123

Sample wt/vol: 1000 (g/ml) ML Lab File ID: _____

Level: (low/med) LOW Date Sampled: _____

% Moisture: not dec. _____ dec. _____ Date Extracted: 10-03-94

Extraction: (SepF/Cont/Shak/Sox/ Sonc/SPE) SEPF Date Analyzed: 10-19-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L | Q |
|---|---|---|---|
| 94-75-7 | 2,4-D | 15 | |
| 93-72-1 | 2,4,5-TP | 1.1 | J |

U: Concentration of analyte is less than the value given.

FORM I HERB

2L
SOIL HERBICIDE SURROGATE RECOVERY

Name: ITAS-St. Louis Contract: 500.01

Code: ITSL Case No.: SAS No.: SDG No.: 4052

| | EPA SAMPLE NO. | S1 (24DCPA) # | S2 (OTHER) # |
|---|---|---|---|
| 01 | HBLK01 | 104 | |
| 02 | HSPK01 | 109 | |
| 03 | 200096770 | 59 | |
| 04 | | | |
| 05 | | | |
| 06 | | | |
| 07 | | | |
| 08 | | | |
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| 29 | | | |
| 30 | | | |

ADVISORY
QC LIMITS
34 - 149

S1 (24DCPA) = 2,4-Dichlorophenylacetic acid

# Column to be used to flag recovery values

* Values outside of QC limits

D Surrogates diluted out



FORM II HERB-2

2L
WATER HERBICIDE SURROGATE RECOVERY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: ____ SDG No.: 4052

| | EPA SAMPLE NO. | S1 (24DCPA) # | S2 (OTHER) # |
|---|---|---|---|
| 01 | HBLK02 | 101 | |
| 02 | HSPK02 | 113 | |
| 03 | 200093929 | 108 | |
| 04 | | | |
| 05 | | | |
| 06 | | | |
| 07 | | | |
| 08 | | | |
| 09 | | | |
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| 27 | | | |
| 28 | | | |
| 29 | | | |
| 30 | | | |

ADVISORY
QC LIMITS
56 - 166

S1 (24DCPA) = 2,4-Dichlorophenylacetic acid

# Column to be used to flag recovery values

* Values outside of QC limits

D Surrogates diluted out

 FORM II HERB-2

3L
SOIL HERBICIDES SPIKE BLANK (LCS) RECOVERY

Name: ITAS-St. Louis Contract: 500.01

Code: ITSL Case No.: SAS No.: SDG No.: 4052

ce ID: SPK 47122

| COMPOUND | SPIKE ADDED (ug/Kg) | SPIKE CONCENTRATION (ug/Kg) | SPK % REC # | QC LIMITS REC |
|---|---|---|---|---|
| 2,4-D | 200 | 290 | 146 | 31-172 |
| 2,4,5-TP | 20 | 22 | 110 | 48-151 |
| | | | | |
| | | | | |

# Column to be used to flag recovery values with an asterisk

* Values outside of QC limits

MENTS: Permanent QC Limits are not established for Herbicides. QC Limits are established through control charting.

FORM III HERB-2

3L

# SOIL HERBICIDES SPIKE BLANK (LCS) RECOVERY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4052

Spike ID: SPK 47123

| COMPOUND | SPIKE ADDED (ug/L) | SPIKE CONCENTRATION (ug/L) | SPK % REC # | QC LIMITS REC |
|---|---|---|---|---|
| 2,4-D | 10 | 15 | 154 | 33-194 |
| 2,4,5-TP | 1.0 | 1.1 | 110 | 57-164 |
| | | | | |
| | | | | |

# Column to be used to flag recovery values with an asterisk

* Values outside of QC limits

COMMENTS: Permanent QC Limits are not established for Herbicides. QC Limits are established through control charting.

FORM III HERB-2

3N

# SOIL HERBICIDES MATRIX SPIKE/MATRIX SPIKE DUPLICATE

b Name: ITAS-St. Louis Contract: 500.01

b Code: ITSL Case No.: SAS No.: SDG No.: 3975

trix Spike - EPA Sample No.: 200094000

| COMPOUND | SPIKE ADDED (ug/Kg) | SAMPLE CONCENTRATION (ug/Kg) | MS CONCENTRATION (ug/Kg) | MS % REC # | QC LIMITS %REC |
|---|---|---|---|---|---|
| 2,4-D | 200 | 0 | 250 | 127 | 31-172 |
| 2,4,5-TP | 20 | 73 | 16 | 0 | 48-151 |

| COMPOUND | SPIKE ADDED (ug/Kg) | MSD CONCENTRATION (ug/Kg) | MS % REC # | % RPD # | QC LIMITS %REC | %RPD |
|---|---|---|---|---|---|---|
| 2,4-D | 190 | 140 | 75 | 51 | 31-172 | ND |
| 2,4,5-TP | 19 | 22 | 0 | NC | 48-151 | ND |

# Column to be used to flag recovery values with an asterisk

* Values outside of QC limits

ND Not determined

MENTS: Permanent QC Limits are not established for Herbicides. QC Limits for % Recovery are established through control charting.

FORM III HERB-4

4E

# HERBICIDE METHOD BLANK SUMMARY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: ____ SDG No.: 4052

Lab Sample ID: BLK 47122 Lab File ID: _____

Matrix: (soil/water) SOIL Level (low/med) LOW

Date Extracted: 10-03-94 Extraction: (SepF/Cont/Sonc/ Shak/Sox/SPE) SHAKER

Date Analyzed (1): 10-19-94 Date Analyzed (2): _____

Time Analyzed (1): 11:25 Time Analyzed (2): _____

Instrument ID (1): GCE Instrument ID (2): _____

GC Column ID (1): DB-5MS GC Column ID (2): _____

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, LCS, MS AND MSD:

| | EPA SAMPLE NO. | LAB SAMPLE ID | DATE ANALYZED 1 | DATE ANALYZED 2 |
|---|---|---|---|---|
| 01 | HSPK01 | SPK 47122 | 10-19-[illegible] | |
| 02 | 200093938 | 6271-007 | 10-19-94 | |
| 03 | | | | |
| 04 | | | | |
| 05 | | | | |
| 06 | | | | |
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| 08 | | | | |
| 09 | | | | |
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COMMENTS: _____



FORM IV HERB

4E
HERBICIDE METHOD BLANK SUMMARY

Name: ITAS-St. Louis Contract: 500.01

Code: ITSL Case No.: SAS No.: SDG No.: 4052

Sample ID: BLK 47123 Lab File ID:

rix:(soil/water) WATER Level(low/med) LOW

e Extracted: 10-03-94 Extraction: (SepF/Cont/Sonc/ Shak/Sox/SPE) SEPF

e Analyzed (1): 10-19-94 Date Analyzed (2):

e Analyzed (1): 20:26 Time Analyzed (2):

trument ID (1): GCE Instrument ID (2):

Column ID (1): DB-5MS GC Column ID (2):

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, LCS, MS AND MSD:

| | EPA SAMPLE NO. | LAB SAMPLE ID | DATE ANALYZED 1 | DATE ANALYZED 2 |
|---|---|---|---|---|
| 01 | HSPK02 | SPK 47123 | 10-19-94 | |
| 02 | 200093929 | 6271-005 | 10-19-94 | |
| 03 | | | | |
| 04 | | | | |
| 05 | | | | |
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MENTS:

ge 1 of 1

FORM IV HERB

6E

HERBICIDE ORGANICS INITIAL CALIBRATION DATA

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4052

Instrument ID: GCE GC Column ID: DB-5MS

Calibration Date(s): 10-12-94 to 10-12-94

| COMPOUD | CALIBRATION FACTOR LEVEL #1 | CALIBRATION FACTOR LEVEL #2 | CALIBRATION FACTOR LEVEL #3 | CALIBRATION FACTOR LEVEL #4 | CALIBRATION FACTOR LEVEL #5 | CALIBRATION FACTOR LEVEL #6 |
|---|---|---|---|---|---|---|
| 2,4-DCPA | 1331000 | 1159700 | | 1091360 | 1003430 | 881575 |
| 2,4-D | | 1347800 | | 1285040 | 1209010 | 1096995 |
| 2,4,5-TP | 4180000 | 5122000 | | 5209400 | 5368800 | 5126350 |

| COMPOUND | CALIBRATION FACTOR LEVEL #7 | CALIBRATION FACTOR LEVEL #8 | CALIBRATION FACTOR LEVEL #9 | AVERAGE ESTER-CALIB FACTOR | AVERAGE ACID-CALIB. FACTOR | %RSD (<20%) |
|---|---|---|---|---|---|---|
| 2,4-DCPA | 795953 | | | 1043836 | 1115210 | 19 |
| 2,4-D | 1014175 | | | 1190604 | 1266600 | 11 |
| 2,4,5-TP | 5128025 | | | 5022429 | 5281208 | 8 |

Under AVERAGE CALIBRATION FACTOR, enter the average of the calibration factors. minimum of five calibration levels must be used.

The %RSD must be less than 20% for the average calibration factor to be used. If th %RSD is ≥ 20%, a point-to-point calibration must be used. In this case, enter "Pt-to-Pt under AVERAGE CALIBRATION FACTOR instead of the average calibration factor.

FORM VI HERB

8F

# HERBICIDE ANALYTICAL SEQUENCE SUMMARY

Name: ITAS-St. Louis Contract: 500.01

Code: ITSL Case No.: SAS No.: SDG No.: 4052

trument ID: GCE GC Column ID: DB-5MS

es of Analyses: 10-18-94 to 10-20-94

| | EPA SAMPLE NO. | LAB SAMPLE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|
| 01 | HERB4 | HERB4 | 10-18-94 | 13:19 |
| 02 | ZZZZZ | ZZZZZ | 10-19-94 | 08:38 |
| 03 | ZZZZZ | ZZZZZ | 10-19-94 | 09:10 |
| 04 | ZZZZZ | ZZZZZ | 10-19-94 | 09:29 |
| 05 | ZZZZZ | ZZZZZ | 10-19-94 | 09:48 |
| 06 | ZZZZZ | ZZZZZ | 10-19-94 | 10:08 |
| 07 | ZZZZZ | ZZZZZ | 10-19-94 | 10:27 |
| 08 | ZZZZZ | ZZZZZ | 10-19-94 | 10:47 |
| 09 | HBLK01 | BLK 47122 | 10-19-94 | 11:25 |
| 10 | HSPK01 | SPK 47122 | 10-19-94 | 11:45 |
| 11 | ZZZZZ | ZZZZZ | 10-19-94 | 12:04 |
| 12 | HERB4 | HERB4 | 10-19-94 | 12:43 |
| 13 | 200093938 | 6271-007 | 10-19-94 | 13:02 |
| 14 | ZZZZZ | ZZZZZ | 10-19-94 | 13:40 |
| 15 | ZZZZZ | ZZZZZ | 10-19-94 | 14:00 |
| 16 | ZZZZZ | ZZZZZ | 10-19-94 | 14:19 |
| 17 | ZZZZZ | ZZZZZ | 10-19-94 | 14:38 |
| 18 | ZZZZZ | ZZZZZ | 10-19-94 | 14:58 |
| 19 | ZZZZZ | ZZZZZ | 10-19-94 | 15:17 |
| 20 | ZZZZZ | ZZZZZ | 10-19-94 | 15:36 |
| 21 | ZZZZZ | ZZZZZ | 10-19-94 | 15:55 |
| 22 | ZZZZZ | ZZZZZ | 10-19-94 | 16:15 |
| 23 | HERB4 | HERB4 | 10-19-94 | 16:54 |
| 24 | ZZZZZ | ZZZZZ | 10-19-94 | 17:13 |
| 25 | ZZZZZ | ZZZZZ | 10-19-94 | 17:32 |
| 26 | ZZZZZ | ZZZZZ | 10-19-94 | 17:51 |
| 27 | ZZZZZ | ZZZZZ | 10-19-94 | 18:11 |
| 28 | ZZZZZ | ZZZZZ | 10-19-94 | 18:30 |
| 29 | ZZZZZ | ZZZZZ | 10-19-94 | 18:49 |
| 30 | ZZZZZ | ZZZZZ | 10-19-94 | 19:09 |
| 31 | ZZZZZ | ZZZZZ | 10-19-94 | 19:28 |
| 32 | ZZZZZ | ZZZZZ | 10-19-94 | 19:47 |
| 34 | HBLK02 | BLK 47123 | 10-19-94 | 20:26 |
| 35 | HERB4 | HERB4 | 10-19-94 | 20:45 |
| 36 | HSPK02 | SPK 47123 | 10-19-94 | 21:04 |
| 37 | ZZZZZ | ZZZZZ | 10-19-94 | 21:24 |
| 38 | ZZZZZ | ZZZZZ | 10-19-94 | 21:43 |
| 39 | ZZZZZ | ZZZZZ | 10-19-94 | 22:02 |
| 40 | ZZZZZ | ZZZZZ | 10-19-94 | 22:22 |
| 41 | ZZZZZ | ZZZZZ | 10-19-94 | 22:41 |
| 42 | 200093929 | 6271-005 | 10-19-94 | 23:00 |
| 43 | ZZZZZ | ZZZZZ | 10-19-94 | 23:39 |
| 44 | ZZZZZ | ZZZZZ | 10-19-94 | 23:58 |
| 45 | ZZZZZ | ZZZZZ | 10-20-94 | 00:18 |
| 46 | HERB4 | HERB4 | 10-20-94 | 00:56 |



FORM VIII HERB

9B

HERBICIDE STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4052

Instrument ID: GCE GC Column ID: DB-5MS

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| DATE(S) OF ANALYSIS FROM: 10-12-94 TO: 10-12-94 | | | | | DATE OF ANALYSIS 10-18-94 | | | |
| TIME(S) OF ANALYSIS FROM: 00:47 TO: 03:14 | | | | | TIME OF ANALYSIS 13:19 | | | |
| | | | | | EPA SAMPLE NO. (STANDARD) HERB4 | | | |
| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | AVERAGE CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
| 2,4-DCPA | 6.48 | 6.44 | 6.52 | 1043836 | 6.48 | 1138940 | Y | 9 |
| 2,4-D | 8.00 | 7.94 | 8.06 | 1190604 | 8.00 | 1358640 | Y | 14 |
| 2,4,5-TP | 9.94 | 9.86 | 10.02 | 5022429 | 9.94 | 5398600 | Y | 7 |

Under AVERAGE CALIBRATION FACTOR, enter the average calibration factor from the five-point calibration curve (FORM VI) if the average calibration factor was used for calculations. If point-tp-point calculations were performed, enter "Pt-to-Pt".

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 15% for quantitation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 15% criteria.

9B
HERBICIDE STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4052

Instrument ID: GCE GC Column ID: DB-5MS

DATE(S) OF ANALYSIS FROM: 10-12-94 TO: 10-12-94
TIME(S) OF ANALYSIS FROM: 00:47 TO: 03:14

DATE OF ANALYSIS 10-19-94
TIME OF ANALYSIS 12:43
EPA SAMPLE NO. (STANDARD) HERB4

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | AVERAGE CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
|---|---|---|---|---|---|---|---|---|
| 2,4-DCPA | 6.48 | 6.44 | 6.52 | 1043836 | 6.47 | 1113520 | Y | 7 |
| 2,4-D | 8.00 | 7.94 | 8.06 | 1190604 | 7.98 | 1356540 | Y | 14 |
| 2,4,5-TP | 9.94 | 9.86 | 10.02 | 5022429 | 9.92 | 5533000 | Y | 10 |

Under AVERAGE CALIBRATION FACTOR, enter the average calibration factor from the five-point calibration curve (FORM VI) if the average calibration factor was used for calculations. If point-tp-point calculations were performed, enter "Pt-to-Pt".

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 15% for quantitation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 15% criteria.

9B
HERBICIDE STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4052

Instrument ID: GCE GC Column ID: DB-5MS

DATE(S) OF ANALYSIS FROM: 10-12-94 TO: 10-12-94
TIME(S) OF ANALYSIS FROM: 00:47 TO: 03:14

DATE OF ANALYSIS 10-19-94
TIME OF ANALYSIS 16:54
EPA SAMPLE NO. (STANDARD) HERB4

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | AVERAGE CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
|---|---|---|---|---|---|---|---|---|
| 2,4-DCPA | 6.48 | 6.44 | 6.52 | 1043836 | 6.48 | 1128640 | Y | 8 |
| 2,4-D | 8.00 | 7.94 | 8.06 | 1190604 | 7.99 | 1258360 | Y | 6 |
| 2,4,5-TP | 9.94 | 9.86 | 10.02 | 5022429 | 9.92 | 5545400 | Y | 11 |

Under AVERAGE CALIBRATION FACTOR, enter the average calibration factor from the five-point calibration curve (FORM VI) if the average calibration factor was used for calculations. If point-tp-point calculations were performed, enter "Pt-to-Pt".

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 15% for quantitation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 15% criteria.

9B
HERBICIDE STANDARDS SUMMARY

) Name: ITAS-St. Louis  Contract: 500.01

) Code: ITSL  Case No.:  SAS No.:  SDG No.: 4052

trument ID: GCE  GC Column ID: DB-5MS

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | DATE(S) OF ANALYSIS FROM: 10-12-94 TO: 10-12-94 TIME(S) OF ANALYSIS FROM: 00:47 TO: 03:14 | | | | DATE OF ANALYSIS 10-19-94 TIME OF ANALYSIS 20:45 EPA SAMPLE NO. (STANDARD) HERB4 | | | |
| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | AVERAGE CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
| 4-DCPA | 6.48 | 6.44 | 6.52 | 1043836 | 6.49 | 1191960 | Y | 14 |
| 4-D | 8.00 | 7.94 | 8.06 | 1190604 | 8.01 | 1301080 | Y | 9 |
| 4,5-TP | 9.94 | 9.86 | 10.02 | 5022429 | 9.96 | 5466200 | Y | 9 |

er AVERAGE CALIBRATION FACTOR, enter the average calibration factor from five-point calibration curve (FORM VI) if the average calibration factor used for calculations. If point-tp-point calculations were performed, er "Pt-to-Pt".

er QNT Y/N: enter Y if quantitation was performed, N if not performed. must be less than or equal to 15% for quantitation.

e: Determining that no compounds were found above the CRDL is a form of ntitation, and therefore at least one column must meet the 15% criteria.



FORM IX HERB

9B

# HERBICIDE STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: _____ SAS No.: ____ SDG No.: 4052

Instrument ID: GCE GC Column ID: DB-5MS

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | DATE(S) OF ANALYSIS FROM: 10-12-94<br>TO: 10-12-94<br>TIME(S) OF ANALYSIS FROM: 00:47<br>TO: 03:14 | | | | DATE OF ANALYSIS 10-20-94<br>TIME OF ANALYSIS 00:56<br>EPA SAMPLE NO. (STANDARD) HERB4 | | | |
| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | AVERAGE CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
| 2,4-DCPA | 6.48 | 6.44 | 6.52 | 1043836 | 6.49 | 1221060 | N | 17 |
| 2,4-D | 8.00 | 7.94 | 8.06 | 1190604 | 8.01 | 1400720 | N | 18 |
| 2,4,5-TP | 9.94 | 9.86 | 10.02 | 5022429 | 9.96 | 5469600 | N | 9 |

Under AVERAGE CALIBRATION FACTOR, enter the average calibration factor from the five-point calibration curve (FORM VI) if the average calibration factor was used for calculations. If point-tp-point calculations were performed, enter "Pt-to-Pt".

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 15% for quantitation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 15% criteria.

11C
HERBICIDE CALIBRATION STANDARD CONCENTRATIONS

Name: ITAS-St. Louis Contract: 500.01

Code: ITSL Case No.: SAS No.: SDG No.: 4052

trument ID: GCE GC Column ID: DB-5MS

ibration Date(s): 10-12-94 to 10-12-94

| STER FORM<br>OMPOUD | CONCENTRATION (ng/ml) LEVEL #1 | CONCENTRATION (ng/ml) LEVEL #2 | CONCENTRATION (ng/ml) LEVEL #3 | CONCENTRATION (ng/ml) LEVEL #4 | CONCENTRATION (ng/ml) LEVEL #5 |
|---|---|---|---|---|---|
| ,4-DCPA | 2.0 | 10.0 | 20.0 | 50.0 | 100.0 |
| ,4-D | 2.0 | 10.0 | 20.0 | 50.0 | 100.0 |
| ,4,5-TP | 0.2 | 1.0 | 2.0 | 5.0 | 10.0 |

| OMPOUD | CONCENTRATION (ng/ml) LEVEL #6 | CONCENTRATION (ng/ml) LEVEL #7 | CONCENTRATION (ng/ml) LEVEL #8 | CONCENTRATION (ng/ml) LEVEL #9 | CONCENTRATION (ng/ml) LEVEL #10 |
|---|---|---|---|---|---|
| ,4-DCPA | 200.0 | 400.0 | | | |
| ,4-D | 200.0 | 400.0 | | | |
| ,4,5-TP | 20.0 | 40.0 | | | |

FORM XI HERB

1D

PCB ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200093943

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4052

Matrix: (soil/water) SOIL Lab Sample ID: 6271-010

Sample wt/vol: 30.1 (g/ml) G Lab File ID: _____

Level: (low/med) LOW Date Sampled : 09-26-94

% Moisture: not dec. 2 dec. _____ Date Extracted: 10-04-94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 10-10-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 100

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | 3400 | U |
| 11141-16-5 | Aroclor-1232 | 3400 | |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | 3400 | U |
| 12672-29-6 | Aroclor-1248 | | SD |
| 11097-69-1 | Aroclor-1254 | 40000 | |
| 11096-82-5 | Aroclor-1260 | 3400 | U |

SD: See dilution.

FORM I PEST

1D
PCB ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
200093943DL

Name: ITAS-St. Louis Contract: 500-01

Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4052

rix: (soil/water) SOIL Lab Sample ID: 6271-010DL

ple wt/vol: 30.1 (g/ml) G Lab File ID: _____

el: (low/med) LOW Date Sampled : 09-26-94

oisture: not dec. 2 dec. _____ Date Extracted: 10-04-94

raction: (SepF/Cont/Sonc) SONC Date Analyzed: 10-21-94

Cleanup: (Y/N) N pH: _____ Dilution Factor: 500

| AS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| .104-28-2 | Aroclor-1221 | | SS |
| .141-16-5 | Aroclor-1232 | | SS |
| 469-21-9/12674-11-2 | Aroclor-1242/1016 | | SS |
| 672-29-6 | Aroclor-1248 | 66000 | |
| .097-69-1 | Aroclor-1254 | | SS |
| .096-82-5 | Aroclor-1260 | | SS |

See 1:100 dilution.

FORM I PEST

1D
PCB ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
200093951

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4052

Matrix: (soil/water) SOIL Lab Sample ID: 6271-016

Sample wt/vol: 30.0 (g/ml) G Lab File ID: _____

Level: (low/med) LOW Date Sampled : 09-26-94

% Moisture: not dec. 2 dec. _____ Date Extracted: 10-04-94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 10-10-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 100

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | 3400 | U |
| 11141-16-5 | Aroclor-1232 | 3400 | |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | 3400 | U |
| 12672-29-6 | Aroclor-1248 | | SD |
| 11097-69-1 | Aroclor-1254 | | SD |
| 11096-82-5 | Aroclor-1260 | 3400 | U |

SD: See dilution.

FORM I PEST

1D
PCB ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
200093951DL

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4052

Matrix: (soil/water) SOIL Lab Sample ID: 6271-016DL

Sample wt/vol: 30.0 (g/ml) G Lab File ID: _____

Level: (low/med) LOW Date Sampled : 09-26-94

% Moisture: not dec. 2 dec. _____ Date Extracted: 10-04-94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 10-21-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 500

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | | SS |
| 11141-16-5 | Aroclor-1232 | | SS |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | | SS |
| 12672-29-6 | Aroclor-1248 | 104000 | |
| 11097-69-1 | Aroclor-1254 | 83000 | |
| 11096-82-5 | Aroclor-1260 | | SS |

SS: See 1:100 dilution.

FORM I PEST

1D

PCB ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

200093962

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4052

Matrix: (soil/water) SOIL Lab Sample ID: 6271-019

Sample wt/vol: 30.1 (g/ml) G Lab File ID: _____

Level: (low/med) LOW Date Sampled : 09-26-94

% Moisture: not dec. 3 dec. _____ Date Extracted: 10-04-94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 10-10-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 100

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | 3400 | U |
| 11141-16-5 | Aroclor-1232 | 3400 | |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | 3400 | U |
| 12672-29-6 | Aroclor-1248 | | SD |
| 11097-69-1 | Aroclor-1254 | 40000 | |
| 11096-82-5 | Aroclor-1260 | 3400 | U |

SD: See dilution.

FORM I PEST

1D
PCB ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
200093962DL

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4052

Matrix: (soil/water) SOIL Lab Sample ID: 6271-019DL

Sample wt/vol: 30.1 (g/ml) G Lab File ID: _____

Level: (low/med) LOW Date Sampled : 09-26-94

% Moisture: not dec. 3 dec. _____ Date Extracted: 10-04-94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 10-21-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 500

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

| CAS NO. | Compound | | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | | SS |
| 11141-16-5 | Aroclor-1232 | | SS |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | | SS |
| 12672-29-6 | Aroclor-1248 | 73000 | |
| 11097-69-1 | Aroclor-1254 | | SS |
| 11096-82-5 | Aroclor-1260 | | SS |

SS: See 1:100 dilution.

FORM I PEST

1D

PCB ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLK02

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4052

Matrix: (soil/water) WATER Lab Sample ID: BLK 47183

Sample wt/vol: 1000 (g/ml) ML Lab File ID: _____

Level: (low/med) LOW Date Sampled : _____

% Moisture: not dec. _____ dec. _____ Date Extracted: 10-03-94

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10-21-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | 1.0 | U |
| 11141-16-5 | Aroclor-1232 | 1.0 | U |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | 1.0 | U |
| 12672-29-6 | Aroclor-1248 | 1.0 | U |
| 11097-69-1 | Aroclor-1254 | 1.0 | U |
| 11096-82-5 | Aroclor-1260 | 1.0 | U |

FORM I PEST

1D
PCB ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
PSPK02

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4052

Matrix: (soil/water) WATER Lab Sample ID: SPK 47183

Sample wt/vol: 1000 (g/ml) ML Lab File ID: _____

Level: (low/med) LOW Date Sampled : _____

% Moisture: not dec. _____ dec. _____ Date Extracted: 10-03-94

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10-21-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

| CAS NO. | Compound | | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | 1.0 | U |
| 11141-16-5 | Aroclor-1232 | 1.0 | U |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | 1.0 | U |
| 12672-29-6 | Aroclor-1248 | 1.0 | U |
| 11097-69-1 | Aroclor-1254 | 7.2 | |
| 11096-82-5 | Aroclor-1260 | 1.0 | U |

FORM I PEST

1D
PCB ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
PBLK01

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4052

Matrix: (soil/water) SOIL Lab Sample ID: BLK 47251

Sample wt/vol: 30.0 (g/ml) G Lab File ID: _____

Level: (low/med) LOW Date Sampled : _____

% Moisture: not dec. _____ dec. _____ Date Extracted: 10-04-94

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 10-07-94

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | 33 | U |
| 11141-16-5 | Aroclor-1232 | 33 | U |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | 33 | U |
| 12672-29-6 | Aroclor-1248 | 33 | U |
| 11097-69-1 | Aroclor-1254 | 33 | U |
| 11096-82-5 | Aroclor-1260 | 33 | U |

FORM I PEST

1D
PCB ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
PSPK01

Name: ITAS-St. Louis Contract: 500-01

Code: ITSL Case No.: _____ SAS No.: _____ SDG No.: 4052

trix: (soil/water) SOIL Lab Sample ID: SPK 47251

mple wt/vol: 30.0 (g/ml) G Lab File ID: _____

vel: (low/med) LOW Date Sampled : _____

Moisture: not dec. _____ dec. _____ Date Extracted: 10-04-94

traction: (SepF/Cont/Sonc) SONC Date Analyzed: 10-07-94

C Cleanup: (Y/N) N pH: _____ Dilution Factor: 1

| CAS NO. | Compound | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---|---|---|---|
| 11104-28-2 | Aroclor-1221 | 33 | U |
| 11141-16-5 | Aroclor-1232 | 33 | U |
| 53469-21-9/12674-11-2 | Aroclor-1242/1016 | 33 | U |
| 12672-29-6 | Aroclor-1248 | 33 | U |
| 11097-69-1 | Aroclor-1254 | 270 | |
| 11096-82-5 | Aroclor-1260 | 33 | U |

FORM I PEST

2F

SOIL PCB SURROGATE RECOVERY

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4052

Level: (low/med) LOW

| | EPA SAMPLE NO. | S1 (DBC) # | S2 (TCMX) # |
|---|---|---|---|
| 01 | PBLK01 | | 110 |
| 02 | PSPK01 | | 8 |
| 03 | 200093943 | | 125 |
| 04 | 200093951 | | 151 |
| 05 | 200093962 | | 108 |
| 06 | 200093943DL | | D |
| 07 | 200093951DL | | D |
| 08 | 200093962DL | | D |
| 09 | | | |
| 10 | | | |
| 11 | | | |
| 12 | | | |
| 13 | | | |
| 14 | | | |
| 15 | | | |
| 16 | | | |
| 17 | | | |
| 18 | | | |
| 19 | | | |
| 20 | | | |
| 21 | | | |
| 22 | | | |
| 23 | | | |
| 24 | | | |
| 25 | | | |
| 26 | | | |
| 27 | | | |
| 28 | | | |
| 29 | | | |
| 30 | | | |

ADVISORY QC LIMITS

S1 (DBC) = Dibutylchlorendate
S2 (TCMX) = Tetrachlorom-m-xylene ( D-209)

# Column to be used to flag recovery values

• Values outside of QC limits

D Surrogates diluted out

2E
WATER PCB SURROGATE RECOVERY

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: _____ SAS No.: ____ SDG No.: 4052

Level: (low/med) LOW

| | EPA SAMPLE NO. | S1 (DBC) # | S2 (TCMX) # |
|---|---|---|---|
| 01 | PBLK02 | | 89 |
| 02 | PSPK02 | | 99 |
| 03 | 200093933 | | 95 |
| 04 | | | |
| 05 | | | |
| 06 | | | |
| 07 | | | |
| 08 | | | |
| 09 | | | |
| 10 | | | |
| 11 | | | |
| 12 | | | |
| 13 | | | |
| 14 | | | |
| 15 | | | |
| 16 | | | |
| 17 | | | |
| 18 | | | |
| 19 | | | |
| 20 | | | |
| 21 | | | |
| 22 | | | |
| 23 | | | |
| 24 | | | |
| 25 | | | |
| 26 | | | |
| 27 | | | |
| 28 | | | |
| 29 | | | |
| 30 | | | |

ADVISORY QC LIMITS

S1 (DBC) = Dibutylchlorendate
S2 (TCMX) = Tetrachlorom-m-xylene (38-144)

# Column to be used to flag recovery values

• Values outside of QC limits

D Surrogates diluted out

3F

SOIL PCB SPIKE BLANK(LCS) RECOVERY

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4052

Spike Blank No.: SPK 47251

| COMPOUND | SPIKE ADDED (ug/kg) | SPIKE CONCENTRATION (ug/kg) | SPK % REC # | QC LIMITS REC. |
|---|---|---|---|---|
| Aroclor-1254 | 170 | 270 | 161 | D-343 |
| | | | | |
| | | | | |

# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

ND: not determined

Spike Recovery: 0 out of 1 outside limits

COMMENTS:

FORM III PEST-2

3E
WATER PCB SPIKE BLANK(LCS) RECOVERY

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4052

Spike Blank No.: SPK 47183

| COMPOUND | SPIKE ADDED (ug/l) | SPIKE CONCENTRATION (ug/l) | SPK % REC # | QC LIMITS REC. |
|---|---|---|---|---|
| Aroclor-1254 | 5.0 | 7.2 | 143 | D-343 |

# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

ND: not determined

Spike Recovery: 0 out of 1 outside limits

COMMENTS:

FORM III PEST-2

# SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ITAS-St. Louis Contract: 500.01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 3975

Matrix Spike - EPA Sample No.: 200094005 Level:(low/med) LOW

| COMPOUND | SPIKE ADDED (ug/kg) | SAMPLE CONCENTRATION (ug/Kg) | MS CONCENTRATION (ug/Kg) | MS % REC # | QC LIMITS REC. |
|---|---|---|---|---|---|
| Aroclor-1254 | 250 | 0.0 | 2400 | 968 * | 29-131 |
| | | | | | |
| | | | | | |

| COMPOUND | SPIKE ADDED (ug/kg) | MSD CONCENTRATION (ug/Kg) | MSD % REC # | % RPD | QC LIMITS RPD | QC LIMITS REC. |
|---|---|---|---|---|---|---|
| Aroclor 1254 | 340 | 4600 | 1369 * | 63 | | 29-131 |
| | | | | | | |
| | | | | | | |

# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: _____ out of _____ outside limits
Spike Recovery: 2 out of 2 outside limits

COMMENTS: AR 1260 interference.

FORM III PEST-2

4C
PCB METHOD BLANK SUMMARY

Name: ITAS-St. Louis  Contract: 500-01

Code: ITSL  Case No.: _____  SAS No.: ____  SDG No.: 4052

Sample ID: BLK 47251  Lab File ID: _____

rix: (soil/water) SOIL  Level (low/med) LOW

e Extracted: 10-04-94  Extraction: (SepF/Cont/Sonc) SONC

e Analyzed (1): 10-07-94  Date Analyzed (2): _____

e Analyzed (1): 02:29  Time Analyzed (2): _____

rument ID (1): GCA  Instrument ID (2): _____

Column ID (1): DB-608  GC Column ID (2): _____

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

| | EPA SAMPLE NO. | LAB SAMPLE ID | DATE ANALYZED 1 | DATE ANALYZED 2 |
|---|---|---|---|---|
| 01 | PSPK01 | SPK47251 | 10-07-94 | |
| 02 | 200093943 | 6271-010 | 10-10-94 | |
| 03 | 200093951 | 6271-016 | 10-10-94 | |
| 04 | 200093962 | 6271-019 | 10-10-94 | |
| 05 | 200093943DL | 6271-010DL | 10-21-94 | |
| 06 | 200093951DL | 6271-016DL | 10-21-94 | |
| 07 | 200093962DL | 6271-019DL | 10-21-94 | |
| 08 | | | | |
| 09 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |
| 15 | | | | |
| 16 | | | | |
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| 18 | | | | |
| 19 | | | | |
| 20 | | | | |
| 21 | | | | |
| 22 | | | | |
| 23 | | | | |

MENTS: _____

e 1 of 1

FORM IV PEST  1/87 Rev.

4C
PCB METHOD BLANK SUMMARY

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4052

Lab Sample ID: BLK 47183 Lab File ID:

Matrix: (soil/water) WATER Level (low/med) LOW

Date Extracted: 10-03-94 Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed (1): 10-21-94 Date Analyzed (2):

Time Analyzed (1): 11:52 Time Analyzed (2):

Instrument ID (1): GCA Instrument ID (2):

GC Column ID (1): DB-608 GC Column ID (2):

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

| | EPA SAMPLE NO. | LAB SAMPLE ID | DATE ANALYZED 1 | DATE ANALYZED 2 |
|---|---|---|---|---|
| 01 | PSPK02 | SPK41831 | 10-21-94 | |
| 02 | 200093933 | 6271-002 | 10-21-94 | |
| 03 | | | | |
| 04 | | | | |
| 05 | | | | |
| 06 | | | | |
| 07 | | | | |
| 08 | | | | |
| 09 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |
| 15 | | | | |
| 16 | | | | |
| 17 | | | | |
| 18 | | | | |
| 19 | | | | |
| 20 | | | | |
| 21 | | | | |
| 22 | | | | |
| 23 | | | | |

COMMENTS:

6F

PCB ORGANICS INITIAL CALIBRATION DATA

Name: ITAS-St. Louis Contract: 500-01

Code: ITSL Case No.: SAS No.: SDG No.: 4052

trument ID: GCA GC Column ID: DB-608

ibration Date(s): 09-21-94 to 09-21-94

to

| OMPOUND | CALIBRAT. FACTOR LEVEL #1 | CALIBRAT. FACTOR LEVEL #2 | CALIBRAT. FACTOR LEVEL #3 | CALIBRAT. FACTOR LEVEL #4 | CALIBRAT. FACTOR LEVEL #5 | CALIBRAT. FACTOR LEVEL #6 |
|---|---|---|---|---|---|---|
| R 1221 | 276020 | 203080 | 230092 | 196410 | 177455 | |
| R 1232 | | 415260 | 380884 | 353860 | 328822 | 303381 |
| R 1242/1016 | | 775630 | 693900 | 588966 | 513549 | 497294 |
| R 1248 | | 802250 | 713648 | 630270 | 573260 | 526305 |
| R 1254 | 591580 | 545610 | 513788 | 467932 | 419976 | 410034 |
| R 1260 | 948840 | 893940 | 880908 | 733946 | 664854 | 631646 |
| CMX | 5602000 | 5387000 | 5111200 | 4664200 | 4597750 | 4488800 |
| BC | 4093400 | 3539500 | 2990360 | 2537750 | 2290255 | 2102833 |

| OMPOUND | CALIBRAT. FACTOR LEVEL #7 | CALIBRAT. FACTOR LEVEL #8 | CALIBRAT. FACTOR LEVEL #9 | CALIBRAT. FACTOR LEVEL #10 | AVERAGE CALBRAT. FACTOR | %RSD (<20%) |
|---|---|---|---|---|---|---|
| R 1221 | | | | | 216611 | 18 |
| R 1232 | | | | | 356441 | 12 |
| R 1242/1016 | | | | | 613868 | 19 |
| R 1248 | | | | | 649147 | 17 |
| R 1254 | | | | | 491487 | 15 |
| R 1260 | | | | | 792356 | 17 |
| CMX | | | | | 4975158 | 9 |
| BC | | | | | PT-TO-PT | 26 |

er AVERAGE CALIBRATION FACTOR, enter the average of the calibration factors.

%RSD must be less than 20% for the average calibration factor to be used. If the D is ≥ 20%, a point-to-point calibration must be used. In this case, enter "Pt-to-Pt" er AVERAGE CALIBRATION FACTOR instead of the average calibration factor.

FORM VI PCB-1

6F

# PCB ORGANICS INITIAL CALIBRATION DATA

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: _____ SAS No.: ____ SDG No.: 1154.01

Instrument ID: GCA GC Column ID: DB-608

Calibration Date(s): 10-20-94 to 10-20-94
_____ to _____

| COMPOUND | CALIBRAT. FACTOR LEVEL #1 | CALIBRAT. FACTOR LEVEL #2 | CALIBRAT. FACTOR LEVEL #3 | CALIBRAT. FACTOR LEVEL #4 | CALIBRAT. FACTOR LEVEL #5 | CALIBRAT. FACTOR LEVEL #6 |
|---|---|---|---|---|---|---|
| AR 1221 | 289200 | 275050 | 269844 | 243650 | 228096 | 222049 |
| AR 1232 | 628620 | 577160 | 509540 | 459942 | 430340 | 396172 |
| AR 1242/1016 | 966640 | 934460 | 829452 | 714596 | 662548 | 628998 |
| AR 1248 | 909660 | 889560 | 846892 | 753982 | 716565 | 704451 |
| AR 1254 | 591280 | 615660 | 579028 | 520932 | 487309 | 450929 |
| AR 1260 | 848060 | 882310 | 842456 | 736368 | 703577 | 669359 |
| TCMX | 6480000 | 6661000 | 6161200 | 5395900 | 5211950 | 4977933 |
| DBC | 3719100 | 3496950 | 3016280 | 2477960 | 2212010 | 2007797 |

| COMPOUND | CALIBRAT. FACTOR LEVEL #7 | CALIBRAT. FACTOR LEVEL #8 | CALIBRAT. FACTOR LEVEL #9 | CALIBRAT. FACTOR LEVEL #10 | AVERAGE CALBRAT. FACTOR | %RSD (<20%) |
|---|---|---|---|---|---|---|
| AR 1221 | | | | | 254648 | 11 |
| AR 1232 | | | | | 500296 | 18 |
| AR 1242/1016 | | | | | 789449 | 18 |
| AR 1248 | | | | | 803518 | 11 |
| AR 1254 | | | | | 540856 | 12 |
| AR 1260 | | | | | 780355 | 11 |
| TCMX | | | | | 5814664 | 12 |
| DBC | | | | | PT-TO-PT | 25 |

Under AVERAGE CALIBRATION FACTOR, enter the average of the calibration factors.

The %RSD must be less than 20% for the average calibration factor to be used. If t %RSD is ≥ 20%, a point-to-point calibration must be used. In this case, enter "Pt-to-I under AVERAGE CALIBRATION FACTOR instead of the average calibration factor.

FORM VI PCB-1

8E
PCB EVALUATION STANDARDS SUMMARY

Name: ITAS-St. Louis Contract: 500-01

Code: ITSL Case No.: SAS No.: SDG No.: 4052

rument ID: GC A GC Column ID: DB-608

s of Analyses: 10-07-94 to 10-07-94

| | EPA SAMPLE NO. | LAB SAMPLE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|
| 01 | AR3254-3 | AR3254-3 | 10-07-94 | 01:45 |
| 02 | AR2148-3 | AR2148-3 | 10-07-94 | 01:59 |
| 03 | AR4260-3 | AR4260-3 | 10-07-94 | 02:14 |
| 04 | PBLK01 | BLK47251 | 10-07-94 | 02:29 |
| 05 | PSPK01 | SPK47251 | 10-07-94 | 02:43 |
| 06 | ZZZZZ | ZZZZZ | 10-07-94 | 02:58 |
| 07 | ZZZZZ | ZZZZZ | 10-07-94 | 03:12 |
| 08 | ZZZZZ | ZZZZZ | 10-07-94 | 03:27 |
| 09 | ZZZZZ | ZZZZZ | 10-07-94 | 03:42 |
| 10 | ZZZZZ | ZZZZZ | 10-07-94 | 03:56 |
| 11 | ZZZZZ | ZZZZZ | 10-07-94 | 04:11 |
| 12 | ZZZZZ | ZZZZZ | 10-07-94 | 04:25 |
| 13 | ZZZZZ | ZZZZZ | 10-07-94 | 04:40 |
| 14 | AR3254-3 | AR3254-3 | 10-07-94 | 05:09 |
| 15 | | | | |
| 16 | | | | |
| 17 | | | | |
| 18 | | | | |
| 19 | | | | |
| 20 | | | | |
| 21 | | | | |
| 22 | | | | |
| 23 | | | | |
| 24 | | | | |



FORM VIII PEST-2

1/87 Rev.

8E

# PCB EVALUATION STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4052

Instrument ID: GC A GC Column ID: DB-608

Dates of Analyses: 10-10-94 to 10-10-94

| | EPA SAMPLE NO. | LAB SAMPLE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|
| 01 | AR3254-3 | AR3254-3 | 10-10-94 | 10:59 |
| 02 | AR2148-3 | AR2148-3 | 10-10-94 | 11:21 |
| 03 | AR4260-3 | AR4260-3 | 10-10-94 | 11:36 |
| 04 | ZZZZZ | ZZZZZ | 10-10-94 | 12:20 |
| 05 | ZZZZZ | ZZZZZ | 10-10-94 | 12:34 |
| 06 | ZZZZZ | ZZZZZ | 10-10-94 | 12:49 |
| 07 | ZZZZZ | ZZZZZ | 10-10-94 | 13:03 |
| 08 | ZZZZZ | ZZZZZ | 10-10-94 | 13:18 |
| 09 | ZZZZZ | ZZZZZ | 10-10-94 | 13:32 |
| 10 | ZZZZZ | ZZZZZ | 10-10-94 | 13:47 |
| 11 | ZZZZZ | ZZZZZ | 10-10-94 | 14:02 |
| 12 | ZZZZZ | ZZZZZ | 10-10-94 | 14:16 |
| 13 | ZZZZZ | ZZZZZ | 10-10-94 | 14:31 |
| 14 | AR3254-3 | AR3254-3 | 10-10-94 | 15:15 |
| 15 | ZZZZZ | ZZZZZ | 10-10-94 | 15:29 |
| 16 | 200093943 | 6271-010 | 10-10-94 | 15:44 |
| 17 | 200093951 | 6271-016 | 10-10-94 | 15:58 |
| 18 | 200093962 | 6271-019 | 10-10-94 | 16:13 |
| 19 | AR3254-3 | AR3254-3 | 10-11-94 | 07:12 |
| 20 | | | | |
| 21 | | | | |
| 22 | | | | |
| 23 | | | | |
| 24 | | | | |

8E
PCB EVALUATION STANDARDS SUMMARY

007211

Name: ITAS-St. Louis Contract: 500-01

Code: ITSL Case No.: SAS No.: SDG No.: 4052

rument ID: GC A GC Column ID: DB-608

s of Analyses: 10-20-94 to 10-25-94

| | EPA SAMPLE NO. | LAB SAMPLE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|
| 01 | AR2148-1 | AR2148-1 | 10-20-94 | 00:47 |
| 02 | AR2148-2 | AR2148-2 | 10-20-94 | 01:02 |
| 03 | AR2148-3 | AR2148-3 | 10-20-94 | 01:16 |
| 04 | AR2148-4 | AR2148-4 | 10-20-94 | 01:31 |
| 05 | AR2148-5 | AR2148-5 | 10-20-94 | 01:46 |
| 06 | AR2148-6 | AR2148-6 | 10-20-94 | 02:00 |
| 07 | AR3254-1 | AR3254-1 | 10-20-94 | 02:29 |
| 08 | AR3254-2 | AR3254-2 | 10-20-94 | 02:44 |
| 09 | AR3254-3 | AR3254-3 | 10-20-94 | 02:59 |
| 10 | AR3254-4 | AR3254-4 | 10-20-94 | 03:13 |
| 11 | AR3254-5 | AR3254-5 | 10-20-94 | 03:28 |
| 12 | AR3254-6 | AR3254-6 | 10-20-94 | 03:42 |
| 13 | AR4260-1 | AR4260-1 | 10-20-94 | 04:12 |
| 14 | AR4260-2 | AR4260-2 | 10-20-94 | 04:26 |
| 15 | AR4260-3 | AR4260-3 | 10-20-94 | 04:41 |
| 16 | AR4260-4 | AR4260-4 | 10-20-94 | 04:55 |
| 17 | AR4260-5 | AR4260-5 | 10-20-94 | 05:10 |
| 18 | AR4260-6 | AR4260-6 | 10-20-94 | 05:24 |
| 19 | AR2148-3 | AR2148-3 | 10-21-94 | 01:04 |
| 20 | AR3254-3 | AR3254-3 | 10-21-94 | 01:19 |
| 21 | AR4260-3 | AR4260-3 | 10-21-94 | 01:33 |
| 22 | ZZZZZ | ZZZZZ | 10-21-94 | 02:03 |
| 23 | ZZZZZ | ZZZZZ | 10-21-94 | 02:17 |
| 24 | 200093943DL | 6271-010DL | 10-21-94 | 03:32 |
| 25 | 200093961DL | 6271-016DL | 10-21-94 | 02:46 |
| 26 | 200093962DL | 6271-019DL | 10-21-94 | 03:01 |
| 27 | ZZZZZ | ZZZZZ | 10-21-94 | 03:16 |
| 28 | ZZZZZ | ZZZZZ | 10-21-94 | 06:51 |
| 29 | ZZZZZ | ZZZZZ | 10-21-94 | 07:06 |
| 30 | ZZZZZ | ZZZZZ | 10-21-94 | 07:20 |
| 31 | ZZZZZ | ZZZZZ | 10-21-94 | 08:04 |
| 32 | ZZZZZ | INDA | 10-21-94 | 09:38 |
| 33 | ZZZZZ | INDB | 10-21-94 | 08:52 |
| 34 | AR3254-4 | AR3254-4 | 10-21-94 | 09:07 |
| 35 | ZZZZZ | ZZZZZ | 10-21-94 | 09:22 |
| 36 | ZZZZZ | ZZZZZ | 10-21-94 | 09:36 |
| 37 | ZZZZZ | ZZZZZ | 10-21-94 | 10:06 |
| 38 | ZZZZZ | ZZZZZ | 10-21-94 | 10:20 |
| 39 | ZZZZZ | ZZZZZ | 10-21-94 | 10:39 |
| 40 | ZZZZZ | ZZZZZ | 10-21-94 | 10:53 |
| 41 | ZZZZZ | ZZZZZ | 10-21-94 | 11:08 |
| 42 | ZZZZZ | ZZZZZ | 10-21-94 | 11:23 |

8E

# PCB EVALUATION STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4052

Instrument ID: GC A GC Column ID: DB-608

Dates of Analyses: 10-20-94 to 10-25-94

| | EPA SAMPLE NO. | LAB SAMPLE ID | DATE ANALYZED | TIME ANALYZED |
|---|---|---|---|---|
| 01 | PBLK02 | BLK47183 | 10-21-94 | 11:52 |
| 02 | PSPK02 | SPK47183 | 10-21-94 | 12:07 |
| 03 | ZZZZZ | INDA | 10-21-94 | 12:36 |
| 04 | ZZZZZ | INDB | 10-21-94 | 12:50 |
| 05 | AR3254-4 | AR3254-4 | 10-21-94 | 13:05 |
| 06 | 200093933 | 6271-002 | 10-21-94 | 13:20 |
| 07 | ZZZZZ | ZZZZZ | 10-21-94 | 13:34 |
| 08 | ZZZZZ | ZZZZZ | 10-21-94 | 13:49 |
| 09 | ZZZZZ | ZZZZZ | 10-21-94 | 14:03 |
| 10 | ZZZZZ | INDA | 10-24-94 | 11:17 |
| 11 | ZZZZZ | ZZZZZ | 10-24-94 | 11:32 |
| 12 | ZZZZZ | INDA | 10-24-94 | 12:09 |
| 13 | ZZZZZ | EVAL | 10-25-94 | 06:40 |
| 14 | ZZZZZ | INDA | 10-25-94 | 06:55 |
| 15 | ZZZZZ | INDB | 10-25-94 | 07:10 |
| 16 | ZZZZZ | TOX | 10-25-94 | 07:24 |
| 17 | ZZZZZ | TCHLOR | 10-25-94 | 07:39 |
| 18 | ZZZZZ | AR2148-3 | 10-25-94 | 07:53 |
| 19 | AR3254-3 | AR3254-3 | 10-25-94 | 08:08 |
| 20 | | | | |

9

# PESTICIDE/PCB STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4052

Instrument ID: GC A GC Column ID: DB-608

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | DATE(S) OF ANALYSIS FROM: 09-21-94 TO: 09-21-94 | | | | DATE OF ANALYSIS 10-07-94 | | | |
| | TIME(S) OF ANALYSIS FROM: 01:34 TO: 06:11 | | | | TIME OF ANALYSIS VARIES | | | |
| | | | | | EPA SAMPLE NO. (STANDARD) DAILY CAL | | | |
| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
| AR 1221 | 1.93 | 1.87 | 1.99 | 216611 | 1.93 | 247792 | Y | 14 |
| AR 1232 | 2.32 | 2.24 | 2.40 | 356441 | 2.32 | 356944 | Y | 0 |
| AR 1242/1016 | 3.82 | 3.76 | 3.88 | 613868 | 3.82 | 692436 | Y | 13 |
| AR 1248 | 3.48 | 3.42 | 3.54 | 649147 | 3.48 | 700852 | Y | 8 |
| AR 1254 | 4.80 | 4.74 | 4.86 | 491487 | 4.80 | 514956 | Y | 5 |
| AR 1260 | 6.85 | 6.76 | 6.94 | 792356 | 6.85 | 738332 | Y | 7 |
| DBC | | | | | | | | |
| TCMX | 1.52 | 1.50 | 1.54 | 4975158 | 1.52 | 5403600 | Y | 9 |

Under QNT Y/N: enter Y if quantitation was performed, N if not performed.
%D must be less than or equal to 20.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 20.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.

# PESTICIDE/PCB STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4052

Instrument ID: GC A GC Column ID: DB-608

DATE(S) OF ANALYSIS FROM: 09-21-94 TO: 09-21-94
TIME(S) OF ANALYSIS FROM: 01:34 TO: 06:11

DATE OF ANALYSIS 10-07-94
TIME OF ANALYSIS 05:09
EPA SAMPLE NO. (STANDARD) AR3254-3

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
|---|---|---|---|---|---|---|---|---|
| AR 1221 | 1.93 | 1.87 | 1.99 | 216611 | | | | |
| AR 1232 | 2.32 | 2.24 | 2.40 | 356441 | 2.32 | 316872 | Y | 11 |
| AR 1242/1016 | 3.82 | 3.76 | 3.88 | 613868 | | | | |
| AR 1248 | 3.48 | 3.42 | 3.54 | 649147 | | | | |
| AR 1254 | 4.80 | 4.74 | 4.86 | 491487 | 4.81 | 454156 | Y | 8 |
| AR 1260 | 6.85 | 6.76 | 6.94 | 792356 | | | | |
| DBC | | | | | | | | |
| TCMX | 1.52 | 1.50 | 1.54 | 4975158 | 1.52 | 5227600 | Y | 5 |

Under QNT Y/N: enter Y if quantitation was performed, N if not performed.
%D must be less than or equal to 20.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 20.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.



FORM IX PEST

9

# PESTICIDE/PCB STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4052

Instrument ID: GC A GC Column ID: DB-608

DATE(S) OF ANALYSIS FROM: 09-21-94 TO: 09-21-94
TIME(S) OF ANALYSIS FROM: 01:34 TO: 06:11

DATE OF ANALYSIS 10-07-94
TIME OF ANALYSIS 11:56
EPA SAMPLE NO. (STANDARD) AR3254-3

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
|---|---|---|---|---|---|---|---|---|
| AR 1221 | 1.93 | 1.87 | 1.99 | 216611 | | | | |
| AR 1232 | 2.32 | 2.24 | 2.40 | 356441 | 2.34 | 311746 | Y | 12 |
| AR 1242/1016 | 3.82 | 3.76 | 3.88 | 613868 | | | | |
| AR 1248 | 3.48 | 3.42 | 3.54 | 649147 | | | | |
| AR 1254 | 4.80 | 4.74 | 4.86 | 491487 | 4.86 | 505728 | Y | 3 |
| AR 1260 | 6.85 | 6.76 | 6.94 | 792356 | | | | |
| DBC | | | | | | | | |
| TCMX | 1.52 | 1.50 | 1.54 | 4975158 | 1.54 | 5533000 | Y | 5 |

Under QNT Y/N: enter Y if quantitation was performed, N if not performed.
%D must be less than or equal to 20.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 20.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.



FORM IX PEST

# PESTICIDE/PCB STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: _____ SAS No.: ____ SDG No.: 4052

Instrument ID: GC A GC Column ID: DB-608

| | | |
|---|---|---|
| DATE(S) OF ANALYSIS FROM: 09-21-94 TO: 09-21-94 | | DATE OF ANALYSIS 10-07-94 |
| TIME(S) OF ANALYSIS FROM: 01:34 TO: 06:11 | | TIME OF ANALYSIS 13:38 |
| | | EPA SAMPLE NO. (STANDARD) AR3254-3 |

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
|---|---|---|---|---|---|---|---|---|
| AR 1221 | 1.93 | 1.87 | 1.99 | 216611 | | | | |
| AR 1232 | 2.32 | 2.24 | 2.40 | 356441 | 2.34 | 423142 | N | 19 |
| AR 1242/1016 | 3.82 | 3.76 | 3.88 | 613868 | | | | |
| AR 1248 | 3.48 | 3.42 | 3.54 | 649147 | | | | |
| AR 1254 | 4.80 | 4.74 | 4.86 | 491487 | 4.86 | 477268 | N | 10 |
| AR 1260 | 6.85 | 6.76 | 6.94 | 792356 | | | | |
| DBC | | | | | | | | |
| TCMX | 1.52 | 1.50 | 1.54 | 4975158 | 1.54 | 5405400 | N | 9 |

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 20.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 20.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.



FORM IX PEST

9

PESTICIDE/PCB STANDARDS SUMMARY

Name: ITAS-St. Louis Contract: 500-01

Code: ITSL Case No.: SAS No.: SDG No.: 4052

rument ID: GC A GC Column ID: DB-608

| | DATE(S) OF ANALYSIS FROM: 09-21-94 TO: 09-21-94 TIME(S) OF ANALYSIS FROM: 01:34 TO: 06:11 | | | | DATE OF ANALYSIS 10-10-94 TIME OF ANALYSIS VARIES EPA SAMPLE NO. (STANDARD) DAILY CAL | | | |
|---|---|---|---|---|---|---|---|---|
| OMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
| 1221 | 1.95 | 1.89 | 2.01 | 216611 | 1.95 | 231448 | Y | 7 |
| 1232 | 2.33 | 2.25 | 2.41 | 356441 | 2.33 | 389140 | Y | 9 |
| 1242/1016 | 3.84 | 3.78 | 3.90 | 613868 | 3.84 | 684639 | Y | 12 |
| 1248 | 3.41 | 3.35 | 3.47 | 649147 | 3.41 | 681852 | Y | 5 |
| 1254 | 4.84 | 4.78 | 4.90 | 491487 | 4.84 | 428852 | Y | 13 |
| 1260 | 6.90 | 6.81 | 6.99 | 792356 | 6.90 | 651712 | Y | 18 |
| | | | | | | | | |
| ( | 1.53 | 1.51 | 1.55 | 4975158 | 1.53 | 5117400 | Y | 3 |

: QNT Y/N: enter Y if quantitation was performed, N if not performed.
ıst be less than or equal to 20.0% for quantitation, and less than
ɟual to 20.0% for confirmation.

: Determining that no compounds were found above the CRDL is a form of
:itation, and therefore at least one column must meet the 20.0% criteria.

ıulticomponent analytes, the single largest peak that is characteristic
ıe component should be used to establish retention time and %D.
:ification of such analytes is based primarily on pattern recognition.



FORM IX PEST

# PESTICIDE/PCB STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: _____ SAS No.: ____ SDG No.: 4052

Instrument ID: GC A GC Column ID: DB-608

DATE(S) OF ANALYSIS FROM: 09-21-94 TO: 09-21-94
TIME(S) OF ANALYSIS FROM: 01:34 TO: 06:11

DATE OF ANALYSIS 10-10-94
TIME OF ANALYSIS 15:15
EPA SAMPLE NO. (STANDARD) AR3254-3

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
|---|---|---|---|---|---|---|---|---|
| AR 1221 | 1.95 | 1.89 | 2.01 | 216611 | | | | |
| AR 1232 | 2.33 | 2.25 | 2.41 | 356441 | 2.33 | 335375 | Y | 6 |
| AR 1242/1016 | 3.84 | 3.78 | 3.90 | 613868 | | | | |
| AR 1248 | 3.41 | 3.35 | 3.47 | 649147 | | | | |
| AR 1254 | 4.84 | 4.78 | 4.90 | 491487 | 4.84 | 417796 | Y | 15 |
| AR 1260 | 6.90 | 6.81 | 6.99 | 792356 | | | | |
| DBC | | | | | | | | |
| TCMX | 1.53 | 1.51 | 1.55 | 4975158 | 1.53 | 5649600 | Y | 14 |

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 20.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 20.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.



FORM IX PEST

# PESTICIDE/PCB STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: _____ SAS No.: ____ SDG No.: 4052

Instrument ID: GC A GC Column ID: DB-608

DATE(S) OF ANALYSIS FROM: 09-21-94 TO: 09-21-94
TIME(S) OF ANALYSIS FROM: 01:34 TO: 06:11

DATE OF ANALYSIS 10-11-94
TIME OF ANALYSIS 07:12
EPA SAMPLE NO. (STANDARD) AR3254-3

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
|---|---|---|---|---|---|---|---|---|
| AR 1221 | 1.95 | 1.89 | 2.01 | 216611 | | | | |
| AR 1232 | 2.33 | 2.25 | 2.41 | 356441 | 2.31 | 296896 | N | 17 |
| AR 1242/1016 | 3.84 | 3.78 | 3.90 | 613868 | | | | |
| AR 1248 | 3.41 | 3.35 | 3.47 | 649147 | | | | |
| AR 1254 | 4.84 | 4.78 | 4.90 | 491487 | 4.81 | 389375 | N | 21 |
| AR 1260 | 6.90 | 6.81 | 6.99 | 792356 | | | | |
| DBC | | | | | | | | |
| TCMX | 1.53 | 1.51 | 1.55 | 4975158 | 1.52 | 5566800 | N | 12 |

Under QNT Y/N: enter Y if quantitation was performed, N if not performed.
%D must be less than or equal to 20.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 20.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.



FORM IX PEST

# PESTICIDE/PCB STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: _____ SAS No.: ____ SDG No.: 1154.01

Instrument ID: GC A GC Column ID: DB-608

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | DATE(S) OF ANALYSIS FROM: 10-20-94 TO: 10-20-94 | | | | DATE OF ANALYSIS 10-21-94 | | | |
| | TIME(S) OF ANALYSIS FROM: 00:47 TO: 05:24 | | | | TIME OF ANALYSIS VARIES | | | |
| | | | | | EPA SAMPLE NO. (STANDARD) DAILY CAL | | | |
| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
| AR 1221 | 1.82 | 1.76 | 1.88 | 254648 | 1.82 | 273200 | Y | 7 |
| AR 1232 | 2.62 | 2.54 | 2.70 | 500296 | 2.62 | 516716 | Y | 3 |
| AR 1242/1016 | 2.62 | 2.56 | 2.67 | 789449 | 2.62 | 783442 | Y | 1 |
| AR 1248 | 3.64 | 3.58 | 3.70 | 803518 | 3.64 | 832400 | Y | 4 |
| AR 1254 | 4.82 | 4.76 | 4.88 | 540856 | 4.82 | 558718 | Y | 6 |
| AR 1260 | 6.86 | 6.79 | 6.95 | 780355 | 6.86 | 737160 | Y | 6 |
| DBC | | | | | | | | |
| TCMX | 1.53 | 1.51 | 1.55 | 5814664 | 1.53 | 5775000 | Y | 1 |

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 20.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 20.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.



FORM IX PEST

9

PESTICIDE/PCB STANDARDS SUMMARY

ıme: ITAS-St. Louis Contract: 500-01

ode: ITSL Case No.: SAS No.: SDG No.: 1154.01

ıment ID: GC A GC Column ID: DB-608

DATE(S) OF ANALYSIS FROM: 10-20-94 TO: 10-20-94
TIME(S) OF ANALYSIS FROM: 00:47 TO: 05:24

DATE OF ANALYSIS 10-21-94
TIME OF ANALYSIS 09:07
EPA SAMPLE NO. (STANDARD) AR3254-4

| IPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
|---|---|---|---|---|---|---|---|---|
| :21 | 1.82 | 1.76 | 1.88 | 254648 | | | | |
| :32 | 2.62 | 2.54 | 2.70 | 500296 | 2.62 | 461577 | Y | 8 |
| :42/1016 | 2.62 | 2.56 | 2.67 | 789449 | | | | |
| :48 | 3.64 | 3.58 | 3.70 | 803518 | | | | |
| :54 | 4.82 | 4.76 | 4.88 | 540856 | 4.81 | 527048 | Y | 2 |
| :60 | 6.86 | 6.79 | 6.95 | 780355 | | | | |
| | | | | | | | | |
| | 1.53 | 1.51 | 1.55 | 5814664 | 1.52 | 5351100 | Y | 8 |

QNT Y/N: enter Y if quantitation was performed, N if not performed.
ıt be less than or equal to 20.0% for quantitation, and less than
ıal to 20.0% for confirmation.

Determining that no compounds were found above the CRDL is a form of
.tation, and therefore at least one column must meet the 20.0% criteria.

ılticomponent analytes, the single largest peak that is characteristic
: component should be used to establish retention time and %D.
.fication of such analytes is based primarily on pattern recognition.



FORM IX PEST

# PESTICIDE/PCB STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 1154.01

Instrument ID: GC A GC Column ID: DB-608

DATE(S) OF ANALYSIS FROM: 10-20-94 TO: 10-20-94
TIME(S) OF ANALYSIS FROM: 00:47 TO: 05:24

DATE OF ANALYSIS 10-21-94
TIME OF ANALYSIS 13:05
EPA SAMPLE NO. (STANDARD) AR3254-4

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
|---|---|---|---|---|---|---|---|---|
| AR 1221 | 1.82 | 1.76 | 1.88 | 254648 | | | | |
| AR 1232 | 2.62 | 2.54 | 2.70 | 500296 | 2.62 | 479230 | Y | 4 |
| AR 1242/1016 | 2.62 | 2.56 | 2.67 | 789449 | | | | |
| AR 1248 | 3.64 | 3.58 | 3.70 | 803518 | | | | |
| AR 1254 | 4.82 | 4.76 | 4.88 | 540856 | 4.82 | 536756 | Y | 1 |
| AR 1260 | 6.86 | 6.79 | 6.95 | 780355 | | | | |
| DBC | | | | | | | | |
| TCMX | 1.53 | 1.51 | 1.55 | 5814664 | 1.52 | 5558800 | Y | 4 |

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 20.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 20.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.



FORM IX PEST

9

# PESTICIDE/PCB STANDARDS SUMMARY

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 1154.01

Instrument ID: GC A GC Column ID: DB-608

DATE(S) OF ANALYSIS FROM: 10-20-94 TO: 10-20-94
TIME(S) OF ANALYSIS FROM: 00:47 TO: 05:24

DATE OF ANALYSIS 10-25-94
TIME OF ANALYSIS 08:08
EPA SAMPLE NO. (STANDARD) AR3254-4

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALIBRATION FACTOR | RT | CALIBRATION FACTOR | QNT Y/N | %D |
|---|---|---|---|---|---|---|---|---|
| AR 1221 | 1.82 | 1.76 | 1.88 | 254648 | | | | |
| AR 1232 | 2.62 | 2.54 | 2.70 | 500296 | 2.59 | 428845 | N | 14 |
| AR 1242/1016 | 2.62 | 2.56 | 2.67 | 789449 | | | | |
| AR 1248 | 3.64 | 3.58 | 3.70 | 803518 | | | | |
| AR 1254 | 4.82 | 4.76 | 4.88 | 540856 | 4.77 | 453879 | N | 16 |
| AR 1260 | 6.86 | 6.79 | 6.95 | 780355 | | | | |
| DBC | | | | | | | | |
| TCMX | 1.53 | 1.51 | 1.55 | 5814664 | 1.50 | 4951000 | N | 15 |

Under QNT Y/N: enter Y if quantitation was performed, N if not performed.
%D must be less than or equal to 20.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRDL is a form of quantitation, and therefore at least one column must meet the 20.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.



FORM IX PEST

11A
PCB CALIBRATION STANDARD CONCENTRATIONS

Lab Name: ITAS-St. Louis Contract: 500-01

Lab Code: ITSL Case No.: SAS No.: SDG No.: 4052

Instrument ID: GCA GC Column ID: DB-608

Calibration Date(s): 09-21-94 to 09-21-94
10-20-94 to 10-20-94

| COMPOUD | CONCENTRATION (ng/ml) LEVEL #1 | CONCENTRATION (ng/ml) LEVEL #2 | CONCENTRATION (ng/ml) LEVEL #3 | CONCENTRATION (ng/ml) LEVEL #4 | CONCENTRATI (ng/ml) LEVEL #5 |
|---|---|---|---|---|---|
| AR 1221 | 50 | 100 | 250 | 500 | 1000 |
| AR 1232 | 50 | 100 | 250 | 500 | 1000 |
| AR 1242/1016 | 50 | 100 | 250 | 500 | 1000 |
| AR 1248 | 50 | 100 | 250 | 500 | 1000 |
| AR 1254 | 50 | 100 | 250 | 500 | 1000 |
| AR 1260 | 50 | 100 | 250 | 500 | 1000 |
| TCMX | 1 | 2 | 5 | 10 | 20 |
| DBC | 10 | 20 | 50 | 100 | 200 |

| COMPOUD | CONCENTRATION (ng/ml) LEVEL #6 | CONCENTRATION (ng/ml) LEVEL #7 | CONCENTRATI (ng/ml) LEVEL #8 | CONCENTRATION (ng/ml) LEVEL #9 | CONCENTRATI (ng/ml) LEVEL #10 |
|---|---|---|---|---|---|
| AR 1221 | 1500 | | | | |
| AR 1232 | 1500 | | | | |
| AR 1242/1016 | 1500 | | | | |
| AR 1248 | 1500 | | | | |
| AR 1254 | 1500 | | | | |
| AR 1260 | 1500 | | | | |
| TCMX | 30 | | | | |
| DBC | 300 | | | | |

FORM XI PEST-2

Quanterra Environmental Services

007211

| | | | |
|---|---|---|---|
| PROJECT NUMBER: | 500.01 | REPORT DATE: | 10/27/94 |
| ANALYSIS: | CYANIDE | MATRIX: | SOLID |
| CONTRACTOR SAMPLE NUMBER: | 6271-012 | RELEASE NUMBER: | 4052 |
| FEMP SAMPLE ID: | 200093945 | | |
| DATE SAMPLED: | 09/26/94 | | |
| DATE SAMPLE RECEIVED: | 09/29/94 | | |
| DATE SAMPLE EXTRACTED: | NA | | |
| DATE SAMPLE PREPARED: | 10/06/94 | | |

DILUTION: 1

BATCH NUMBER: 47436

| METHODS | ANALYTES | DATE ANALYZED | DETECTION LIMIT UG/G | ORIGINAL CONC UNITS UG/G |
|---|---|---|---|---|
| EPA 9010 | Cyanide | 10/06/94 | 0.51 | ND |

NA = NOT APPLICABLE; ND = ANALYTE WAS NOT DETECTED

Quanterra Environmental Services

| | | | |
|---|---|---|---|
| PROJECT NUMBER: | 500.01 | REPORT DATE: | 10/27/94 |
| ANALYSIS: | CYANIDE | MATRIX: | SOLID |
| CONTRACTOR SAMPLE NUMBER: | 6271-012DUP | RELEASE NUMBER: | 4052 |
| FEMP SAMPLE ID: | 200093945 | | |
| DATE SAMPLED: | 09/26/94 | | |
| DATE SAMPLE RECEIVED: | 09/29/94 | | |
| DATE SAMPLE EXTRACTED: | NA | | |
| DATE SAMPLE PREPARED: | 10/06/94 | | |

DILUTION: 1

BATCH NUMBER: 47436

| METHODS | ANALYTES | DATE ANALYZED | DETECTION LIMIT UG/G | ORIGINAL CONC UNITS UG/G | RPD |
|---|---|---|---|---|---|
| EPA 9010 | Cyanide | 10/06/94 | 0.51 | ND | * |

* Cannot be calculated due to values below detection limit.

NA = NOT APPLICABLE; ND = ANALYTE WAS NOT DETECTED

Quanterra Environmental Services

007211

| | | | |
|---|---|---|---|
| PROJECT NUMBER: | 500.01 | REPORT DATE: | 10/27/94 |
| ANALYSIS: | CYANIDE | MATRIX: | SOLID |
| CONTRACTOR SAMPLE NUMBER: | 6271-021 | RELEASE NUMBER: | 4052 |
| FEMP SAMPLE ID: | 200093957 | | |
| DATE SAMPLED: | 09/26/94 | | |
| DATE SAMPLE RECEIVED: | 09/29/94 | | |
| DATE SAMPLE EXTRACTED: | NA | | |
| DATE SAMPLE PREPARED: | 10/06/94 | | |

DILUTION: 1

BATCH NUMBER: 47436

| METHODS | ANALYTES | DATE ANALYZED | DETECTION LIMIT UG/G | ORIGINAL CONC UNITS UG/G |
|---|---|---|---|---|
| EPA 9010 | Cyanide | 10/06/94 | 0.51 | ND |

NA = NOT APPLICABLE; ND = ANALYTE WAS NOT DETECTED

Quanterra Environmental Services

| | | | |
|---|---|---|---|
| PROJECT NUMBER: | 500.01 | REPORT DATE: | 10/27/94 |
| ANALYSIS: | CYANIDE | MATRIX: | SOLID |
| CONTRACTOR SAMPLE NUMBER: | 6271-012MS | RELEASE NUMBER: | 4052 |
| FEMP SAMPLE ID: | 200093945 | | |
| DATE SAMPLED: | 09/26/94 | | |
| DATE SAMPLE RECEIVED: | 09/29/94 | | |
| DATE SAMPLE EXTRACTED: | NA | | |
| DATE SAMPLE PREPARED: | 10/06/94 | | |

DILUTION: 1

BATCH NUMBER: 47436

| METHODS | ANALYTES | DATE ANALYZED | TRUE VALUE UG/G | FOUND VALUE UG/G | % RECOVERY |
|---|---|---|---|---|---|
| EPA 9010 | Cyanide | 10/06/94 | 25.4 | 22.4 | 88% |

NA = NOT APPLICABLE; ND = ANALYTE WAS NOT DETECTED

Quanterra Environmental Services

007211

| | | | |
|---|---|---|---|
| PROJECT NUMBER: | 500.01 | REPORT DATE: | 10/27/94 |
| ANALYSIS: | CYANIDE | MATRIX: | SOLID |
| CONTRACTOR SAMPLE NUMBER: | QCBLK47436 | RELEASE NUMBER: | 4052 |
| FEMP SAMPLE ID: | NA | | |
| DATE SAMPLED: | NA | | |
| DATE SAMPLE RECEIVED: | NA | | |
| DATE SAMPLE EXTRACTED: | NA | | |
| DATE SAMPLE PREPARED: | 10/06/94 | | |

DILUTION: 1

BATCH NUMBER: 47436

| METHODS | ANALYTES | DATE ANALYZED | DETECTION LIMIT UG/G | ORIGINAL CONC UNITS UG/G |
|---|---|---|---|---|
| EPA 9010 | Cyanide | 10/06/94 | 0.50 | ND |

NA = NOT APPLICABLE; ND = ANALYTE WAS NOT DETECTED

Quanterra Environmental Services

| | | | |
|---|---|---|---|
| PROJECT NUMBER: | 500.01 | REPORT DATE: | 10/27/94 |
| ANALYSIS: | CYANIDE | MATRIX: | SOLID |
| CONTRACTOR SAMPLE NUMBER: | QCLCS47436 | RELEASE NUMBER: | 4052 |
| FEMP SAMPLE ID: | NA | | |
| DATE SAMPLED: | NA | | |
| DATE SAMPLE RECEIVED: | NA | | |
| DATE SAMPLE EXTRACTED: | NA | | |
| DATE SAMPLE PREPARED: | 10/06/94 | | |

DILUTION: 1

BATCH NUMBER: 47436

| METHODS | ANALYTES | DATE ANALYZED | TRUE VALUE UG/G | FOUND VALUE UG/G | % RECOVERY |
|---|---|---|---|---|---|
| EPA 9010 | Cyanide | 10/06/94 | 12.5 | 11.5 | 92% |

NA = NOT APPLICABLE; ND = ANALYTE WAS NOT DETECTED

Quanterra Environmental Services

007211

| | | | |
|---|---|---|---|
| PROJECT NUMBER: | 500.01 | REPORT DATE: | 10/27/94 |
| ANALYSIS: | GENERAL WATER QUALITY | MATRIX: | SOLID |
| CONTRACTOR SAMPLE NUMBER: | 6271-014 | RELEASE NUMBER: | 4052 |
| FEMP SAMPLE ID: | 200093947 | | |
| DATE SAMPLED: | 09/26/94 | | |
| DATE SAMPLE RECEIVED: | 09/29/94 | | |
| DATE SAMPLE EXTRACTED: | NA | | |
| DATE SAMPLE PREPARED: | 10/11/94 | | |

DILUTION: 1

BATCH NUMBER: 47741

| METHODS | ANALYTES | DATE ANALYZED | DETECTION LIMIT pH | ORIGINAL CONC pH |
|---|---|---|---|---|
| 9045 | pH | 10/11/94 | NA | 11.62 |

NA = NOT APPLICABLE; ND = ANALYTE WAS NOT DETECTED

Quanterra Environmental Services

| | | | |
|---|---|---|---|
| PROJECT NUMBER: | 500.01 | REPORT DATE: | 10/27/94 |
| ANALYSIS: | GENERAL WATER QUALITY | MATRIX: | SOLID |
| CONTRACTOR SAMPLE NUMBER: | 6271-014DUP | RELEASE NUMBER: | 4052 |
| FEMP SAMPLE ID: | 200093947 | | |
| DATE SAMPLED: | 09/26/94 | | |
| DATE SAMPLE RECEIVED: | 09/29/94 | | |
| DATE SAMPLE EXTRACTED: | NA | | |
| DATE SAMPLE PREPARED: | 10/11/94 | | |

DILUTION: 1

BATCH NUMBER: 47741

| METHODS | ANALYTES | DATE ANALYZED | DETECTION LIMIT pH | ORIGINAL CONC pH | RPD |
|---|---|---|---|---|---|
| 9045 | pH | 10/11/94 | NA | 11.61 | NA |

NA = NOT APPLICABLE; ND = ANALYTE WAS NOT DETECTED

Quanterra Environmental Services

007211

| | | | |
|---|---|---|---|
| PROJECT NUMBER: | 500.01 | REPORT DATE: | 10/27/94 |
| ANALYSIS: | GENERAL WATER QUALITY | MATRIX: | SOLID |
| CONTRACTOR SAMPLE NUMBER: | 6271-023 | RELEASE NUMBER: | 4052 |
| FEMP SAMPLE ID: | 200093959 | | |
| DATE SAMPLED: | 09/26/94 | | |
| DATE SAMPLE RECEIVED: | 09/29/94 | | |
| DATE SAMPLE EXTRACTED: | NA | | |
| DATE SAMPLE PREPARED: | 10/11/94 | | |

DILUTION: 1

BATCH NUMBER: 47741

| METHODS | ANALYTES | DATE ANALYZED | DETECTION LIMIT pH | ORIGINAL CONC pH |
|---|---|---|---|---|
| 9045 | pH | 10/11/94 | NA | 11.50 |

NA = NOT APPLICABLE; ND = ANALYTE WAS NOT DETECTED

Quanterra Environmental Services

PROJECT NUMBER: 500.01
REPORT DATE: 10/27/94
ANALYSIS: GENERAL WATER QUALITY
MATRIX: SOLID
CONTRACTOR SAMPLE NUMBER: QCBLK47741
RELEASE NUMBER: 4052
FEMP SAMPLE ID: NA
DATE SAMPLED: NA
DATE SAMPLE RECEIVED: NA
DATE SAMPLE EXTRACTED: NA
DATE SAMPLE PREPARED: 10/11/94

DILUTION: 1

BATCH NUMBER: 47741

| METHODS | ANALYTES | DATE ANALYZED | DETECTION LIMIT pH | ORIGINAL ORIGINAL CONC pH |
|---|---|---|---|---|
| 9045 | pH | 10/11/94 | NA | 5.94 |

NA = NOT APPLICABLE; ND = ANALYTE WAS NOT DETECTED

Quanterra Environmental Services

007211

| | | | |
|---|---|---|---|
| PROJECT NUMBER: | 500.01 | REPORT DATE: | 10/27/94 |
| ANALYSIS: | GENERAL WATER QUALITY | MATRIX: | SOLID |
| CONTRACTOR SAMPLE NUMBER: | 6271-014 | RELEASE NUMBER: | 4052 |
| FEMP SAMPLE ID: | 200093947 | | |
| DATE SAMPLED: | 09/26/94 | | |
| DATE SAMPLE RECEIVED: | 09/29/94 | | |
| DATE SAMPLE EXTRACTED: | NA | | |
| DATE SAMPLE PREPARED: | 10/11/94 | | |

DILUTION: 1

BATCH NUMBER: 47866

| METHODS | ANALYTES | DATE ANALYZED | DETECTION LIMIT | PASS/ FAIL |
|---|---|---|---|---|
| 9095 | Paint Filter | 10/11/94 | NA | PASS |

NA = NOT APPLICABLE; ND = ANALYTE WAS NOT DETECTED

Quanterra Environmental Services

| | | | |
|---|---|---|---|
| PROJECT NUMBER: | 500.01 | REPORT DATE: | 10/27/94 |
| ANALYSIS: | GENERAL WATER QUALITY | MATRIX: | SOLID |
| CONTRACTOR SAMPLE NUMBER: | 6271-014DUP | RELEASE NUMBER: | 4052 |
| FEMP SAMPLE ID: | 200093947 | | |
| DATE SAMPLED: | 09/26/94 | | |
| DATE SAMPLE RECEIVED: | 09/29/94 | | |
| DATE SAMPLE EXTRACTED: | NA | | |
| DATE SAMPLE PREPARED: | 10/11/94 | | |

DILUTION: 1

BATCH NUMBER: 47866

| METHODS | ANALYTES | DATE ANALYZED | DETECTION LIMIT | PASS/ FAIL | RPD |
|---|---|---|---|---|---|
| 9095 | Paint Filter | 10/11/94 | NA | PASS | NA |

NA = NOT APPLICABLE; ND = ANALYTE WAS NOT DETECTED

Quanterra Environmental Services

007211

| | | | |
|---|---|---|---|
| PROJECT NUMBER: | 500.01 | REPORT DATE: | 10/27/94 |
| ANALYSIS: | GENERAL WATER QUALITY | MATRIX: | SOLID |
| CONTRACTOR SAMPLE NUMBER: | 6271-023 | RELEASE NUMBER: | 4052 |
| FEMP SAMPLE ID: | 200093959 | | |
| DATE SAMPLED: | 09/26/94 | | |
| DATE SAMPLE RECEIVED: | 09/29/94 | | |
| DATE SAMPLE EXTRACTED: | NA | | |
| DATE SAMPLE PREPARED: | 10/11/94 | | |

DILUTION: 1

BATCH NUMBER: 47866

| METHODS | ANALYTES | DATE ANALYZED | DETECTION LIMIT | PASS/ FAIL |
|---|---|---|---|---|
| 9095 | Paint Filter | 10/11/94 | NA | PASS |

NA = NOT APPLICABLE; ND = ANALYTE WAS NOT DETECTED

Quanterra Environmental Services

| | | | |
|---|---|---|---|
| PROJECT NUMBER: | 500.01 | REPORT DATE: | 10/27/94 |
| ANALYSIS: | TOTAL SULFIDE | MATRIX: | SOLID |
| CONTRACTOR SAMPLE NUMBER: | 6271-013 | RELEASE NUMBER: | 4052 |
| FEMP SAMPLE ID: | 200093946 | | |
| DATE SAMPLED: | 09/26/94 | | |
| DATE SAMPLE RECEIVED: | 09/29/94 | | |
| DATE SAMPLE EXTRACTED: | NA | | |
| DATE SAMPLE PREPARED: | 10/03/94 | | |

DILUTION: 1

BATCH NUMBER: 47281

| METHODS | ANALYTES | DATE ANALYZED | DETECTION LIMIT UG/G | ORIGINAL CONC UNITS UG/G |
|---|---|---|---|---|
| EPA 9030 | Sulfide | 10/03/94 | 11.1 | ND |

NA = NOT APPLICABLE; ND = ANALYTE WAS NOT DETECTED

Quanterra Environmental Services

007211

| | | | |
|---|---|---|---|
| PROJECT NUMBER: | 500.01 | REPORT DATE: | 10/27/94 |
| ANALYSIS: | TOTAL SULFIDE | MATRIX: | SOLID |
| CONTRACTOR SAMPLE NUMBER: | 6271-013DUP | RELEASE NUMBER: | 4052 |
| FEMP SAMPLE ID: | 200093946 | | |
| DATE SAMPLED: | 09/26/94 | | |
| DATE SAMPLE RECEIVED: | 09/29/94 | | |
| DATE SAMPLE EXTRACTED: | NA | | |
| DATE SAMPLE PREPARED: | 10/03/94 | | |

DILUTION: 1

BATCH NUMBER: 47281

| METHODS | ANALYTES | DATE ANALYZED | DETECTION LIMIT UG/G | ORIGINAL CONC UNITS UG/G | RPD |
|---|---|---|---|---|---|
| EPA 9030 | Sulfide | 10/03/94 | 11.0 | ND | * |

* Cannot be calculated due to values below detection limits.

NA = NOT APPLICABLE; ND = ANALYTE WAS NOT DETECTED

Quanterra Environmental Services

| | | | |
|---|---|---|---|
| PROJECT NUMBER: | 500.01 | REPORT DATE: | 10/27/94 |
| ANALYSIS: | TOTAL SULFIDE | MATRIX: | SOLID |
| CONTRACTOR SAMPLE NUMBER: | 6271-022 | RELEASE NUMBER: | 4052 |
| FEMP SAMPLE ID: | 200093958 | | |
| DATE SAMPLED: | 09/26/94 | | |
| DATE SAMPLE RECEIVED: | 09/29/94 | | |
| DATE SAMPLE EXTRACTED: | NA | | |
| DATE SAMPLE PREPARED: | 10/03/94 | | |

DILUTION: 1

BATCH NUMBER: 47281

| METHODS | ANALYTES | DATE ANALYZED | DETECTION LIMIT UG/G | ORIGINAL CONC UNITS UG/G |
|---|---|---|---|---|
| EPA 9030 | Sulfide | 10/03/94 | 11.0 | ND |

NA = NOT APPLICABLE; ND = ANALYTE WAS NOT DETECTED

Quanterra Environmental Services 007211

| | | | |
|---|---|---|---|
| PROJECT NUMBER: | 500.01 | REPORT DATE: | 10/27/94 |
| ANALYSIS: | TOTAL SULFIDE | MATRIX: | SOLID |
| CONTRACTOR SAMPLE NUMBER: | QCBLK47281 | RELEASE NUMBER: | 4052 |
| FEMP SAMPLE ID: | NA | | |
| DATE SAMPLED: | NA | | |
| DATE SAMPLE RECEIVED: | NA | | |
| DATE SAMPLE EXTRACTED: | NA | | |
| DATE SAMPLE PREPARED: | 10/03/94 | | |

DILUTION: 1

BATCH NUMBER: 47281

| METHODS | ANALYTES | DATE ANALYZED | DETECTION LIMIT UG/G | ORIGINAL CONC UNITS UG/G |
|---|---|---|---|---|
| EPA 9030 | Sulfide | 10/03/94 | 10.6 | ND |

NA = NOT APPLICABLE; ND = ANALYTE WAS NOT DETECTED

Quanterra Environmental Services

| | | | |
|---|---|---|---|
| PROJECT NUMBER: | 500.01 | REPORT DATE: | 10/27/94 |
| ANALYSIS: | TOTAL SULFIDE | MATRIX: | SOLID |
| CONTRACTOR SAMPLE NUMBER: | 6271-013MS | RELEASE NUMBER: | 4052 |
| FEMP SAMPLE ID: | 200093946 | | |
| DATE SAMPLED: | 09/26/94 | | |
| DATE SAMPLE RECEIVED: | 09/29/94 | | |
| DATE SAMPLE EXTRACTED: | NA | | |
| DATE SAMPLE PREPARED: | 10/03/94 | | |

DILUTION: 1

BATCH NUMBER: 47281

| METHODS | ANALYTES | DATE ANALYZED | TRUE VALUE UG/G | FOUND VALUE UG/G | % RECOVERY |
|---|---|---|---|---|---|
| EPA 9030 | Sulfide | 10/03/94 | 100 | 116 | 116% |

NA = NOT APPLICABLE; ND = ANALYTE WAS NOT DETECTED

Quanterra Environmental Services

007211

| | | | |
|---|---|---|---|
| PROJECT NUMBER: | 500.01 | REPORT DATE: | 10/27/94 |
| ANALYSIS: | TOTAL SULFIDE | MATRIX: | SOLID |
| CONTRACTOR SAMPLE NUMBER: | QCLCS47281 | RELEASE NUMBER: | 4052 |
| FEMP SAMPLE ID: | NA | | |
| DATE SAMPLED: | NA | | |
| DATE SAMPLE RECEIVED: | NA | | |
| DATE SAMPLE EXTRACTED: | NA | | |
| DATE SAMPLE PREPARED: | 10/03/94 | | |

DILUTION: 1

BATCH NUMBER: 47281

| METHODS | ANALYTES | DATE ANALYZED | TRUE VALUE UG/G | FOUND VALUE UG/G | % RECOVERY |
|---|---|---|---|---|---|
| EPA 9030 | Sulfide | 10/03/94 | 101 | 98.8 | 98% |

NA = NOT APPLICABLE; ND = ANALYTE WAS NOT DETECTED

Quanterra Environmental Services

| | | | |
|---|---|---|---|
| PROJECT NUMBER: | 500.01 | REPORT DATE: | 10/27/94 |
| ANALYSIS: | GENERAL WATER QUALITY | MATRIX: | SOLID |
| CONTRACTOR SAMPLE NUMBER: | 6271-011 | RELEASE NUMBER: | 4052 |
| FEMP SAMPLE ID: | 200093944 | | |
| DATE SAMPLED: | 09/26/94 | | |
| DATE SAMPLE RECEIVED: | 09/29/94 | | |
| DATE SAMPLE EXTRACTED: | NA | | |
| DATE SAMPLE PREPARED: | 10/24/94 | | |

DILUTION: 1

BATCH NUMBER: 49079

| METHODS | ANALYTES | DATE ANALYZED | DETECTION LIMIT UG/G | ORIGINAL CONC UG/G |
|---|---|---|---|---|
| 9020 | TOX | 10/24/94 | 49.0 | 72.6 |

NA = NOT APPLICABLE; ND = ANALYTE WAS NOT DETECTED

Quanterra Environmental Services

007211

| | | | |
|---|---|---|---|
| PROJECT NUMBER: | 500.01 | REPORT DATE: | 10/27/94 |
| ANALYSIS: | GENERAL WATER QUALITY | MATRIX: | SOLID |
| CONTRACTOR SAMPLE NUMBER: | 6271-011DUP | RELEASE NUMBER: | 4052 |
| FEMP SAMPLE ID: | 200093944 | | |
| DATE SAMPLED: | 09/26/94 | | |
| DATE SAMPLE RECEIVED: | 09/29/94 | | |
| DATE SAMPLE EXTRACTED: | NA | | |
| DATE SAMPLE PREPARED: | 10/24/94 | | |

DILUTION: 1

BATCH NUMBER: 49079

| METHODS | ANALYTES | DATE ANALYZED | DETECTION LIMIT UG/G | ORIGINAL CONC UG/G | RPD |
|---|---|---|---|---|---|
| 9020 | TOX | 10/24/94 | 50.6 | 76.0 | 5% |

6271-011 Dup

93944 Dup

NA = NOT APPLICABLE; ND = ANALYTE WAS NOT DETECTED

Quanterra Environmental Services

| | | | |
|---|---|---|---|
| PROJECT NUMBER: | 500.01 | REPORT DATE: | 10/27/94 |
| ANALYSIS: | GENERAL WATER QUALITY | MATRIX: | SOLID |
| CONTRACTOR SAMPLE NUMBER: | 6271-011MS | RELEASE NUMBER: | 4052 |
| FEMP SAMPLE ID: | 200093944 | | |
| DATE SAMPLED: | 09/26/94 | | |
| DATE SAMPLE RECEIVED: | 09/29/94 | | |
| DATE SAMPLE EXTRACTED: | NA | | |
| DATE SAMPLE PREPARED: | 10/24/94 | | |

DILUTION: 1

BATCH NUMBER: 49079

| METHODS | ANALYTES | DATE ANALYZED | TRUE VALUE UG/G | FOUND VALUE UG/G | PERCENT RECOVERY |
|---|---|---|---|---|---|
| 9020 | TOX | 10/24/94 | 100 | 180 | 107 |

NA = NOT APPLICABLE; ND = ANALYTE WAS NOT DETECTED

Quanterra Environmental Services 007211

| | | | |
|---|---|---|---|
| PROJECT NUMBER: | 500.01 | REPORT DATE: | 10/27/94 |
| ANALYSIS: | GENERAL WATER QUALITY | MATRIX: | SOLID |
| CONTRACTOR SAMPLE NUMBER: | 6271-020 | RELEASE NUMBER: | 4052 |
| FEMP SAMPLE ID: | 200093956 | | |
| DATE SAMPLED: | 09/26/94 | | |
| DATE SAMPLE RECEIVED: | 09/29/94 | | |
| DATE SAMPLE EXTRACTED: | NA | | |
| DATE SAMPLE PREPARED: | 10/24/94 | | |

DILUTION: 1

BATCH NUMBER: 49079

| METHODS | ANALYTES | DATE ANALYZED | DETECTION LIMIT UG/G | ORIGINAL CONC UG/G |
|---|---|---|---|---|
| 9020 | TOX | 10/24/94 | 51.0 | 79.6 |

NA = NOT APPLICABLE; ND = ANALYTE WAS NOT DETECTED

Quanterra Environmental Services

PROJECT NUMBER: 500.01
ANALYSIS: GENERAL WATER QUALITY
CONTRACTOR SAMPLE NUMBER: QCBLK49079
FEMP SAMPLE ID: NA
DATE SAMPLED: NA
DATE SAMPLE RECEIVED: NA
DATE SAMPLE EXTRACTED: NA
DATE SAMPLE PREPARED: 10/24/94

REPORT DATE: 10/27/94
MATRIX: SOLID
RELEASE NUMBER: 4052

DILUTION: 1

BATCH NUMBER: 49079

| METHODS | ANALYTES | DATE ANALYZED | DETECTION LIMIT UG/G | ORIGINAL CONC UNITS UG/G |
|---|---|---|---|---|
| 9020 | TOX | 10/24/94 | 50.0 | ND |

NA = NOT APPLICABLE; ND = ANALYTE WAS NOT DETECTED

Quanterra Environmental Services

007211

PROJECT NUMBER: 500.01
ANALYSIS: GENERAL WATER QUALITY
CONTRACTOR SAMPLE NUMBER: QCLCS49079
FEMP SAMPLE ID: NA
DATE SAMPLED: NA
DATE SAMPLE RECEIVED: NA
DATE SAMPLE EXTRACTED: NA
DATE SAMPLE PREPARED: 10/24/94

REPORT DATE: 10/27/94
MATRIX: SOLID
RELEASE NUMBER: 4052

DILUTION: 1

BATCH NUMBER: 49079

| METHODS | ANALYTES | DATE ANALYZED | TRUE VALUE UG/G | FOUND VALUE UG/G | PERCENT RECOVERY | QC LIMITS |
|---|---|---|---|---|---|---|
| 9020 | TOX | 10/24/94 | 100 | 97.4 | 97 | (80 - 120) |

NA = NOT APPLICABLE; ND = ANALYTE WAS NOT DETECTED

USER SAMPLE ID : 044801-002
SAMPLE ID : 200093941
SAMPLE PT : 400004
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000004052
LAB : FEMP INORGANICS-EPM
ASL : B

000793

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 9011/TOTAL U - XRF ANALYSIS, UG/G DRY | | | | | | | | | | |
| | URANIUM | 331 | | | | ug/g | 24-OCT-94 | 20-OCT-94 | | COMPLETE / ONLINE | |
| | C94-158/SAMPLE PREP, DRY & GRIND-EPM | | | | | | | | | | |
| | MOISTURE | 2.7 | | | | wt % | 24-OCT-94 | 29-SEP-94 | | COMPLETE / ONLINE | |

2 RECORDS PRINTED

**********

USER SAMPLE ID : 044801-001
SAMPLE ID : 200093936
SAMPLE PT : 4000043
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000004052
LAB : ITAS-STL
ASL : B

Sampled 9-26-94

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4013/ALPHA/BETA SCREEN, PCI/ML | | | | | | | | | | |
| | ALPHA | 0.16 | U | | | pCi/m | 27-SEP-94 | 27-SEP-94 | | COMPLETE / ONLINE | |
| | BETA | 0.31 | U | | | pCi/m | 27-SEP-94 | 27-SEP-94 | | COMPLETE / ONLINE | |

2 RECORDS PRINTED

000794

**********

Your Selection Criteria Was: Release Number: 1000004052 Sample ID Range: thru Display Text? Y
Laboratory: Exclude Approval Lines? Y

000711

USER SAMPLE ID : 044801-002
SAMPLE ID : 200093942
SAMPLE PT : 400004
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000004052
LAB : ITAS-STL
ASL : B

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 9011/TOTAL TH - XRF ANALYSIS, UG/G DRY | | | | | | | | | | |
| | THORIUM | 18 | U | | | ug/g | 24-OCT-94 | 20-OCT-94 | | COMPLETE / ONLINE | |
| | C94-158/SAMPLE PREP, DRY & GRIND-EPM | | | | | | | | | | |
| | MOISTURE | 2.6 | | | | wt % | 24-OCT-94 | 29-SEP-94 | | COMPLETE / ONLINE | |

2 RECORDS PRINTED

000795

**********

USER SAMPLE ID : 044801-002
SAMPLE ID : 200093948
SAMPLE PT : 400004
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000004052
LAB : FEMP RADIOCHEMICAL
ASL : B

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 6S0006/GAMMA SPECTROMETRY, PCI/G | | | | | | | | | | |
| | ANTIMONY 125 | 0.0069 | U | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | CERIUM 144 | 0.0078 | U | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | CESIUM 134 | 0.0027 | U | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | CESIUM 137 | 0.35 | | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | COBALT 60 | 0.0045 | U | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | MANGANESE 54 | 0.0033 | U | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | NEPTUNIUM 237 | 0.0043 | U | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | POTASSIUM 40 | 11 | | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | RADIUM 226 | 5.0 | | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | RUTHENIUM 106 | 0.027 | U | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | THORIUM 232 | 0.52 | | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | URANIUM 235 | 7.1 | | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | URANIUM 238 | 96 | | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | ZINC 65 | 0.0084 | U | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | BARIUM 133 | 0.0029 | U | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | COBALT 57 | 0.00098 | U | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |

16 RECORDS PRINTED

000796

**********

Your Selection Criteria Was: Release Number: 1000004052 Sample ID Range: thru Display Text? Y
Laboratory: Exclude Approval Lines? Y

00021.1

USER SAMPLE ID : 044801-002
SAMPLE ID : 200093949
SAMPLE PT : 40000$4
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000004052
LAB : ITAS-STL
ASL : B

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4013/ALPHA/BETA SCREEN, PCI/G | | | | | | | | | | |
| | ALPHA | 140 | | | | pCi/g | 27-SEP-94 | 27-SEP-94 | | COMPLETE / ONLINE | |
| | BETA | 130 | | | | pCi/g | 27-SEP-94 | 27-SEP-94 | | COMPLETE / ONLINE | |

2 RECORDS PRINTED

262000

**********

Your Selection Criteria Has: Release Number: 1000004052 Sample ID Range: thru Display Text? Y

USER SAMPLE ID : 044801-002
SAMPLE ID : 200093954
SAMPLE PT : 400005
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000004052
LAB : FEMP INORGANICS-EPM
ASL : B

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 9011/TOTAL U - XRF ANALYSIS, UG/G DRY | | | | | | | | | | |
| | URANIUM | 183.7 | | | | ug/g | 24-OCT-94 | 20-OCT-94 | | COMPLETE / ONLINE | |
| | C94-158/SAMPLE PREP, DRY & GRIND-EPM | | | | | | | | | | |
| | MOISTURE | 2.7 | | | | wt % | 24-OCT-94 | 29-SEP-94 | | COMPLETE / ONLINE | |

2 RECORDS PRINTED

000798

**********

Your Selection Criteria Was: Release Number: 1000004052 Sample ID Range: thru Display Text? Y
Laboratory: Exclude Approval Lines? Y

00782L

USER SAMPLE ID : 044801-002
SAMPLE ID : 200093955
SAMPLE PT : 400005
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000004052
LAB : ITAS-STL
ASL : B

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 9011/TOTAL TH - XRF ANALYSIS, UG/G DRY | | | | | | | | | | |
| | THORIUM | 18 | U | | | ug/g | 24-OCT-94 | 20-OCT-94 | | COMPLETE / ONLINE | |
| | C94-158/SAMPLE PREP, DRY & GRIND-EPM | | | | | | | | | | |
| | MOISTURE | 2.6 | | | | wt % | 24-OCT-94 | 29-SEP-94 | | COMPLETE / ONLINE | |

2 RECORDS PRINTED

000799

**********

USER SAMPLE ID : 044801-002
SAMPLE ID : 200093960
SAMPLE PT : 400005
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000004052
LAB : FEMP RADIOCHEMICAL
ASL : B

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 6S0006/GAMMA SPECTROMETRY, PCI/G | | | | | | | | | | |
| | ANTIMONY 125 | 0.0069 | U | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | CERIUM 144 | 0.0079 | U | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | CESIUM 134 | 0.0028 | U | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | CESIUM 137 | 0.32 | | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | COBALT 60 | 0.0045 | U | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | MANGANESE 54 | 0.0033 | U | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | NEPTUNIUM 237 | 0.0043 | U | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | POTASSIUM 40 | 9.9 | | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | RADIUM 226 | 6.7 | | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | RUTHENIUM 106 | 0.028 | U | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | THORIUM 232 | 0.96 | | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | URANIUM 235 | 12 | | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | URANIUM 238 | 160 | | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | ZINC 65 | 0.0085 | U | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | BARIUM 133 | 0.0030 | U | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |
| | COBALT 57 | 0.00098 | U | | | pCi/g | 02-NOV-94 | 12-OCT-94 | | COMPLETE / DONE | |

16 RECORDS PRINTED

000800

**********

Your Selection Criteria Was: Release Number: 1000004052 Sample ID Range: thru Display Text? Y
Laboratory: Exclude Approval Lines? Y

00221

USER SAMPLE ID : 044801-002
SAMPLE ID : 200093961
SAMPLE PT : 400005
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000004052
LAB : ITAS-STL
ASL : B

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4013/ALPHA/BETA SCREEN, PCI/G | | | | | | | | | | |
| | ALPHA | 140 | | | | pCi/g | 27-SEP-94 | 27-SEP-94 | | COMPLETE / ONLINE | |
| | BETA | 120 | | | | pCi/g | 27-SEP-94 | 27-SEP-94 | | COMPLETE / ONLINE | |

2 RECORDS PRINTED

000301

**********

USER SAMPLE ID : 044801-001
SAMPLE ID : 200093931
SAMPLE PT : 400002
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000004052
LAB : FEMP INORGANICS-EPM
ASL : B

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3002/U - BRPADAP ANALYSIS (MG/L) | | | | | | | | | | |
| | URANIUM | .1 | U | | | mg/L | 30-SEP-94 | 29-SEP-94 | | COMPLETE / ONLINE | |

1 RECORD PRINTED

208000

**********

Your Selection Criteria Was: Release Number: 1000004052 Sample ID Range: thru Display Text? Y
Laboratory: Exclude Approval Lines? Y

00721L

HD Decon Solution Concrete

DATE 05-DEC-94
TIME 16:21:23

FORM 1



USER SAMPLE ID : 044801-001
SAMPLE ID : 200093934
SAMPLE PT : 40000~~3~~2
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000004052
LAB : ITAS-STL
ASL : B

000603

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4013/ALPHA/BETA SCREEN, PCI/ML | | | | | | | | | | |
| | ALPHA | 0.29 | U | | | pCi/m | 27-SEP-94 | 27-SEP-94 | | COMPLETE / ONLINE | |
| | BETA | 0.59 | U | | | pCi/m | 27-SEP-94 | 27-SEP-94 | | COMPLETE / ONLINE | |

2 RECORDS PRINTED

**********

USER SAMPLE ID : 044801-001
SAMPLE ID : 200093932
SAMPLE PT : 400002
PROJECT : 04.48.01 HWMU 26 DETREX STILL CLOSURE

RELEASE NUMBER : 1000004052
LAB : ITAS-STL
ASL : B

| SUFFIX | COMPONENT | LAB RESULT | LQ | VAL RESULT | VQ | UNITS | DATE ENTERED | DATE ANALYZED | DATE PREP/EXT | STATUS / CONDITION | RAD PARAMETERS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | C94-198/TOTAL TH - COLOR ANALYSIS (MG/L) | | | | | | | | | | |
| | THORIUM | 0.4 | U | | | mg/L | 20-OCT-94 | 17-OCT-94 | | COMPLETE / ONLINE | |

1 RECORD PRINTED

000804

**********

Your Selection Criteria Was: Release Number: 1000004052 Sample ID Range: thru Display Text? Y
Laboratory: Exclude Approval Lines? Y

00721.1

ORIGINAL

Quanterra Incorporated
13715 Rider Trail North
Earth City, Missouri 63045

314 298-8566 Telephone
314 298-8757 Fax

Quanterra Environmental Services

# CERTIFICATE OF ANALYSIS

FERMCO
PO Box 398074
Cincinnati, OH 45239-8704

ATTENTION: Larry Evans
January 26, 1995



| | |
|---|---|
| PROJECT NUMBER: | 500.01 |
| RELEASE NUMBER: | 4052.1 |
| DATE RECEIVED: | September 29, 1994 |
| NUMBER OF SAMPLES: | Four (4) |
| SAMPLE MATRIX: | Matrix Code C (Construction Material) |

## I. Introduction

On December 27, 1994, additional analyses were requested for fou (4) samples received on September 29, 1994 at Quanterr Environmental Services at St. Louis from Fernald Environmenta Restoration Management Company. The list of analytical test performed, as well as receipt and analysis, can be found in th attached report. The samples were labeled as follows:

| FERMCO SAMPLE ID | QUANTERRA SAMPLE ID | ANALYSES REQUESTED |
|---|---|---|
| 200093939 | 6271-008 | Table 7 (TCLP BNA's) |
| 200093939 | 6271-008MS | Table 7 (TCLP BNA's) |
| 200093939 | 6271-008MSD | Table 7 (TCLP BNA's) |
| 200093937 | 6271-015 | Table 2 (TCLP Metals) |
| 200093937 | 6271-015DUP | Table 2 (TCLP Metals) |
| 200093937 | 6271-015MS | Table 2 (TCLP Metals) |
| 200093952 | 6271-017 | Table 7 (TCLP BNA's) |
| 200093950 | 6271-024 | Table 2 (TCLP Metals) |

II. Analytical Results/Methodology

The analytical results for this report are presented by analytical tests. Each set of data will include sample identification information, the analytical results, and the appropriate detection limits.

The analyses requested includes: TCLP Metals by EPA methods 1311/6010/7470 and TCLP Semivolatiles by EPA methods 1311/8270

III. Quality Control

The QA/QC information can be found immediately following the analytical data. This QA/QC data are used to assess the laboratory's accuracy and precision during the analytical procedure.

Matrix spike and matrix spike duplicate analyses were performed for Matrix C TCLP Semivolatiles for sample 200093939 (6271-008).

Duplicate and matrix spike analyses were performed for Matrix C TCLP Metals for sample 200093937 (6271-015).

IV. Comments/Nonconformances

TCLP METALS

The client requested TCLP analysis after hold date expiration.

Samples 200093937 (6271-015) and 200093950 (6271-024) contained very high concentrations of Calcium which saturated the instrument and requiring a four-fold dilution.

TCLP SEMIVOLATILES

These samples underwent TCLP extraction 85-days past the 14-day holding time due to a recent request for this additional analyse

Sample 200093952 (6271-017) required dilution at 1:4 to bring th 3,4-methylphenol concentration within the instrument calibration range. The MS/MSD on this sample was also diluted 1:4. The MSD gave low recoveries of 3,4-methylphenol at 13% (LCL = 28%) and 1,4-dichlorobenzene at 15% (LCL = 20%). The low 3,4-methylphenc may be associated with the high background concentration of this analyte, but we do not know the cause for the low 1,4-dichlorobenzene recovery. The low recoveries also resulted in high RPD's for these two compounds.

I certify that this Certificate of Analysis is in compliance wi the terms and conditions of the contract, both technically and f completeness, for other than the conditions detailed abov Release of the data contained in this hardcopy data package h been authorized by the laboratory manager or his designee, verified by the following signature.

Reviewed and approved:

Diane L. Mueller

Diane Mueller
Project Manager

Release 4052

Quanterra December 28, 1994 12:47 pm
Account: 10872 Project: 500.01 Fernald Env. Restoration Mgt. Corp. QAS No. 500 Rev. 2
Master Sample Login: 6271

Project Manager: R. White

Draft: Final Entered and Reviewed by: RL Caumont PM Review: DW Mueller 12-28-94

Sample Header Template:

| Sample No. / # | Client ID / Container Type | C-Matrix / Analysis | Date: Collected / Class | Received / Preservative | Due / Anal. Due Date | Shipper / Hold Date | Site | Rad Category / (Container Numbers:% Filled) | Rad Sample No. |
|---|---|---|---|---|---|---|---|---|---|
| 6271-001 | 200093930 | Water | 26-SEP-94 09:25 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | | 1 | Screening not Required |
| CLP FORMS Compounds added - See Memo | | | | | | | | | |
| 2 | VI - Vial-40ml | VOA/8240/04 | S | HCL | 21-OCT-94 | 10-OCT-94 | 109K | (101950:100 101951:99) | |
| 6271-002 | 200093933 | Water | 26-SEP-94 09:25 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | | 1 | Screening not Required |
| CLP FORMS | | | | | | | | | |
| 1 | VI - Vial-40ml | PCB/8080/04 | S | COLD | 21-OCT-94 | 03-OCT-94 | S7B | (101952:100) | |
| 6271-003 | 200093927 | Water | 26-SEP-94 09:25 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | | 1 | Screening not Required |
| CLP FORMS | | | | | | | | | |
| 1 | PN - Plastic-1L | HG/7470/04 | S | HNO3 | 21-OCT-94 | 24-OCT-94 | S7B | (101954:100) | |
| 1 | | ICAP/6010/04 | S | HNO3 | 21-OCT-94 | 25-MAR-95 | S7B | (101954:100) | |
| 6271-004 | 200093928 | Water | 26-SEP-94 09:25 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | | 1 | Screening not Required |
| CLP FORMS | | | | | | | | | |
| 1 | AN - Amber Glass-4L | HOLD//04 | S | HNO3 | 11-&&&-** | 11-&&&-** | S7B | (101956:100) | |
| 6271-005 | 200093929 | Water | 26-SEP-94 09:25 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | | 1 | Screening not Required |
| CLP FORMS | | | | | | | | | |
| 1 | AN - Amber Glass-4L | BNA/8270/04 | S | COLD | 21-OCT-94 | 03-OCT-94 | S7B | (101957:100) | |
| 1 | | HERB/8150/04 | S | COLD | 21-OCT-94 | 03-OCT-94 | S7B | (101957:100) | |
| 6271-006 | 200093935 | Water | 26-SEP-94 08:00 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | | 1 | Screening not Required |
| CLP FORMS Compounds added - See Memo | | | | | | | | | |
| 3 | VI - Vial-40ml | VOA/8240/04 | S | HCL | 21-OCT-94 | 10-OCT-94 | 109K | (101958:100 101959:99 101960:98) | |
| 6271-007 | 200093938 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | | 3 | 82922-002 |
| CLP FORMS | | | | | | | | | |
| 1 | AN - Amber Glass-120ML | HERB/8150/04 | S | COLD | 21-OCT-94 | 10-OCT-94 | S7B | (101961:100) | |
| 1 | | PN/IT/04 | S | COLD | 26-OCT-94 | 25-MAR-95 | S7B | (101961:100) | |
| 6271-008 | 200093939 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | | 3 | 82922-003 |
| CLP FORMS | | | | | | | | | |
| 1 | AN - Amber Glass-120ML | BNA/8270/04 | S | COLD | 21-OCT-94 | 10-OCT-94 | S7B | (101962:100) | |
| | | BNA/TCLP/04 | S | COLD | 20-JAN-95 | 03-OCT-94 | S7B | (101962:100) | |

3 Sample has not been rad screened.



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Quanterra December 28, 1994 12:47 pm
Account: 10872 Project: 500.01 Fernald Env. Restoration Mgt. Corp. QAS No. 500 Rev. 2
Master Sample Login: 6271

Project Manager: R. White

Draft: Final: Entered and Reviewed by:_____ PM Review:_____

Sample Header Template: _____

| Sample No. / Comments | Client ID | C-Matrix | Date: Collected | Received | Due | Shipper | Rad Category | Rad Sample No. |
|---|---|---|---|---|---|---|---|---|
| # Container Type | Analysis | Class | Preservative | Anal. Due Date | Hold Date | Site | (Container Numbers:% Filled) | |
| Date: | | | | | | | | |
| 1 | EXT/TCLP/04 | S | COLD | 20-JAN-95 | 10-OCT-94 | STB | (101962:100) | |
| 1 | PM/IT/04 | S | COLD | 26-OCT-94 | 25-MAR-95 | STB | (101962:100) | |
| 6271-008MS | 200093939 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-003 |
| CLP FORMS | | | | | | | | |
| 1 AN - Amber Glass-120ML | BNA/TCLP/04 | S | COLD | 20-JAN-95 | 03-OCT-94 | STB | (101962:100) | |
| 1 | EXT/TCLP/04 | S | COLD | 20-JAN-95 | 10-OCT-94 | STB | (101962:100) | |
| 6271-008MSD | 200093939 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-003 |
| CLP FORMS | | | | | | | | |
| 1 AN - Amber Glass-120ML | BNA/TCLP/04 | S | COLD | 20-JAN-95 | 03-OCT-94 | STB | (101962:100) | |
| 1 | EXT/TCLP/04 | S | COLD | 20-JAN-95 | 10-OCT-94 | STB | (101962:100) | |
| 6271-009 | 200093940 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-004 |
| CLP FORMS Compounds added - See Memo | | | | | | | | |
| 3 AN - Amber Glass-120ML | PM/IT/04 | S | COLD | 26-OCT-94 | 25-MAR-95 | 109K | (101963:100 101964:99 101965:98) | |
| 3 | VOA/8240/04 | S | COLD | 21-OCT-94 | 10-OCT-94 | 109K | (101963:100 101964:99 101965:98) | |
| 6271-010 | 200093943 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-005 |
| CLP FORMS | | | | | | | | |
| 1 AN - Amber Glass-120ML | PCB/8080/04 | S | COLD | 21-OCT-94 | 10-OCT-94 | STB | (101966:100) | |
| 1 | PM/IT/04 | S | COLD | 26-OCT-94 | 25-MAR-95 | STB | (101966:100) | |
| 6271-011 | 200093944 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-006 |
| 1 AN - Amber Glass-120ML | PM/IT/04 | S | COLD | 26-OCT-94 | 25-MAR-95 | STB | (101969:100) | |
| 1 | TOX/9020/04 | S | COLD | 21-OCT-94 | 24-OCT-94 | STB | (101969:100) | |
| 6271-011DUP | 200093944 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-006 |
| 1 AN - Amber Glass-120ML | TOX/9020/04 | S | COLD | 21-OCT-94 | 24-OCT-94 | STB | (101969:100) | |
| 6271-011MS | 200093944 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-006 |
| 1 AN - Amber Glass-120ML | TOX/9020/04 | S | COLD | 21-OCT-94 | 24-OCT-94 | STB | (101969:100) | |

Quanterra December 28, 1994 12:47 pm
Account: 10872 Project: 500.01 Fernald Env. Restoration Mgt. Corp. QAS No. 500 Rev. 2
Master Sample Login: 6271

Project Manager: R. White

Draft: Final: Entered and Reviewed by:_____ PM Review:_____

Sample Header Template: _____

| Sample No. / Comments / # / Container Type / Date: | Client ID | Analysis | C-Matrix | Date: Collected | Received | Due | Shipper | Rad Category | Rad Sample No. (Container Numbers:% Filled) |
|---|---|---|---|---|---|---|---|---|---|
| 6271-012 | 200093945 | | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-007 |
| 1 AN - Amber Glass-120ML | | CN/9010/Q4 | | S COLD | 21-OCT-94 | 10-OCT-94 | S7B | | (101970:100) |
| 1 | | PM/IT/Q4 | | S COLD | 26-OCT-94 | 25-MAR-95 | S7B | | (101970:100) |
| 6271-012DUP | 200093945 | | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-007 |
| 1 AN - Amber Glass-120ML | | CN/9010/Q4 | | S COLD | 21-OCT-94 | 10-OCT-94 | S7B | | (101970:100) |
| 6271-012MS | 200093945 | | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-007 |
| 1 AN - Amber Glass-120ML | | CN/9010/Q4 | | S COLD | 21-OCT-94 | 10-OCT-94 | S7B | | (101970:100) |
| 6271-013 | 200093946 | | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-008 |
| 1 AN - Amber Glass-120ML | | PM/IT/Q4 | | S COLD | 26-OCT-94 | 25-MAR-95 | S7B | | (101971:100) |
| 1 | | S/9030/Q4 | | S COLD | 21-OCT-94 | 03-OCT-94 | S7B | | (101971:100) |
| 6271-013DUP | 200093946 | | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-008 |
| 1 AN - Amber Glass-120ML | | S/9030/Q4 | | S COLD | 21-OCT-94 | 03-OCT-94 | S7B | | (101971:100) |
| 6271-013MS | 200093946 | | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-008 |
| 1 AN - Amber Glass-120ML | | S/9030/Q4 | | S COLD | 21-OCT-94 | 03-OCT-94 | S7B | | (101971:100) |
| 6271-014 | 200093947 | | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-009 |
| 1 AN - Amber Glass-120ML | | PAINT/9095/Q4 | | S COLD | 21-OCT-94 | 24-OCT-94 | S7B | | (101972:100) |
| 1 | | PM/9045/Q4 | | S COLD | 26-OCT-94 | 10-OCT-94 | S7B | | (101972:100) |
| 6271-014DUP | 200093947 | | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-009 |
| 1 AN - Amber Glass-120ML | | PAINT/9095/Q4 | | S COLD | 21-OCT-94 | 24-OCT-94 | S7B | | (101972:100) |
| 1 | | PM/9045/Q4 | | S COLD | 21-OCT-94 | 10-OCT-94 | S7B | | (101972:100) |

3 Sample has not been rad screened.



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Quanterra December 28, 1994 12:47 pm
Account: 10872 Project: 500.01 Fernald Env. Restoration Mgt. Corp. QAS No. 500 Rev. 2
Master Sample Login: 6271

Project Manager: R. White

Draft: Final: Entered and Reviewed by:_____ PM Review:_____

Sample Header Template: _____

| Sample No. / Comments | Client ID | C-Matrix | Date: Collected | Received | Due | Shipper | Rad Category | Rad Sample No. |
|---|---|---|---|---|---|---|---|---|
| 6271-015 | 200093937 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-010 |
| CLP FORMS | | | | | | | | |

| # | Container Type | Analysis | Class | Preservative | Anal. Due Date | Hold Date | Site | (Container Numbers:% Filled) |
|---|---|---|---|---|---|---|---|---|
| 1 | AN - Amber Glass-500ml | EXTMETAL/TCLP/Q4 | S | COLD | 20-JAN-95 | 24-OCT-94 | STB | (101973:100) |
| 1 | | HG/7470/Q4 | S | COLD | 21-OCT-94 | 24-OCT-94 | STB | (101973:100) |
| 1 | | HG/TCLP/Q4 | S | COLD | 20-JAN-95 | 24-OCT-94 | STB | (101973:100) |
| 1 | | ICAP/6010/Q4 | S | COLD | 21-OCT-94 | 25-MAR-95 | STB | (101973:100) |
| 1 | | ICAP/TCLP/Q4 | S | COLD | 20-JAN-95 | 25-MAR-95 | STB | (101973:100) |
| 1 | | PM/IT/Q4 | S | COLD | 26-OCT-94 | 25-MAR-95 | STB | (101973:100) |
| 1 | | RAD/SCREEN/Q4 | S | COLD | 26-OCT-94 | 28-MAR-95 | STB | (101973:100) |

| 6271-015DUP | 200093937 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-010 |
|---|---|---|---|---|---|---|---|---|
| CLP FORMS | | | | | | | | |

| # | Container Type | Analysis | Class | Preservative | Anal. Due Date | Hold Date | Site | (Container Numbers:% Filled) |
|---|---|---|---|---|---|---|---|---|
| 1 | AN - Amber Glass-500ml | EXTMETAL/TCLP/Q4 | S | COLD | 20-JAN-95 | 24-OCT-94 | STB | (101973:100) |
| 1 | | HG/TCLP/Q4 | S | COLD | 20-JAN-95 | 24-OCT-94 | STB | (101973:100) |
| 1 | | ICAP/TCLP/Q4 | S | COLD | 20-JAN-95 | 25-MAR-95 | STB | (101973:100) |

| 6271-015MS | 200093937 | Solid | 26-SEP-94 09:10 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-010 |
|---|---|---|---|---|---|---|---|---|
| CLP FORMS | | | | | | | | |

| # | Container Type | Analysis | Class | Preservative | Anal. Due Date | Hold Date | Site | (Container Numbers:% Filled) |
|---|---|---|---|---|---|---|---|---|
| 1 | AN - Amber Glass-500ml | EXTMETAL/TCLP/Q4 | S | COLD | 20-JAN-95 | 24-OCT-94 | STB | (101973:100) |
| 1 | | HG/TCLP/Q4 | S | COLD | 20-JAN-95 | 24-OCT-94 | STB | (101973:100) |
| 1 | | ICAP/TCLP/Q4 | S | COLD | 20-JAN-95 | 25-MAR-95 | STB | (101973:100) |

| 6271-016 | 200093951 | Solid | 26-SEP-94 09:20 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-011 |
|---|---|---|---|---|---|---|---|---|
| CLP FORMS | | | | | | | | |

| # | Container Type | Analysis | Class | Preservative | Anal. Due Date | Hold Date | Site | (Container Numbers:% Filled) |
|---|---|---|---|---|---|---|---|---|
| 1 | AN - Amber Glass-120ML | PCB/8080/Q4 | S | COLD | 21-OCT-94 | 10-OCT-94 | STB | (101975:100) |
| 1 | | PM/IT/Q4 | S | COLD | 26-OCT-94 | 25-MAR-95 | STB | (101975:100) |

| 6271-017 | 200093952 | Solid | 26-SEP-94 09:20 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-012 |
|---|---|---|---|---|---|---|---|---|
| CLP FORMS | | | | | | | | |

| # | Container Type | Analysis | Class | Preservative | Anal. Due Date | Hold Date | Site | (Container Numbers:% Filled) |
|---|---|---|---|---|---|---|---|---|
| 1 | AN - Amber Glass-120ML | BNA/8270/Q4 | S | COLD | 21-OCT-94 | 10-OCT-94 | STB | (101976:100) |
| 1 | | BNA/TCLP/Q4 | S | COLD | 20-JAN-95 | 03-OCT-94 | STB | (101976:100) |
| 1 | | EXT/TCLP/Q4 | S | COLD | 20-JAN-95 | 10-OCT-94 | STB | (101976:100) |
| 1 | | PM/IT/Q4 | S | COLD | 26-OCT-94 | 25-MAR-95 | STB | (101976:100) |

| 6271-018 | 200093953 | Solid | 26-SEP-94 09:20 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-013 |
|---|---|---|---|---|---|---|---|---|
| CLP FORMS Compounds added - See Memo | | | | | | | | |

| # | Container Type | Analysis | Class | Preservative | Anal. Due Date | Hold Date | Site | (Container Numbers:% Filled) |
|---|---|---|---|---|---|---|---|---|
| 3 | AN - Amber Glass-120ML | PM/IT/Q4 | S | COLD | 26-OCT-94 | 25-MAR-95 | 109K | (101979:100 101984:99 101985:98) |

3**=Sample has not been rad screened

Quanterra December 28, 1994 12:47 pm
Account: 10872 Project: 500.01 Fernald Env. Restoration Mgt. Corp. QAS No. 500 Rev. 2
Master Sample Login: 6271

Project Manager: R. White

Draft: Final: Entered and Reviewed by:_____ PM Review:_____

Sample Header Template: _____

| Sample No. / # | Client ID / Container Type | Analysis | C-Matrix | Class | Date: Collected / Preservative | Received / Anal. Due Date | Due / Hold Date | Shipper / Site | Rad Category | Rad Sample No. / (Container Numbers:% Filled) |
|---|---|---|---|---|---|---|---|---|---|---|
| Comments / Date: | | | | | | | | | | |
| 3 | | VOA/8240/04 | | S | COLD | 21-OCT-94 | 10-OCT-94 | 109K | | (101979:100 101984:99 101985:98) |
| 6271-019 | 200093962 | | Solid | | 26-SEP-94 09:20 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-014 |
| CLP FORMS | | | | | | | | | | |
| 1 | AN - Amber Glass-120ML | PCB/8080/04 | | S | COLD | 21-OCT-94 | 10-OCT-94 | STB | | (101986:100) |
| 1 | | PM/IT/04 | | S | COLD | 26-OCT-94 | 25-MAR-95 | STB | | (101986:100) |
| 6271-020 | 200093956 | | Solid | | 26-SEP-94 09:20 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-015 |
| CLP FORMS | | | | | | | | | | |
| 1 | AN - Amber Glass-120ML | PM/IT/04 | | S | COLD | 26-OCT-94 | 25-MAR-95 | STB | | (101989:100) |
| 1 | | TOX/9020/04 | | S | COLD | 21-OCT-94 | 24-OCT-94 | STB | | (101989:100) |
| 6271-021 | 200093957 | | Solid | | 26-SEP-94 09:20 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-016 |
| CLP FORMS | | | | | | | | | | |
| 1 | AN - Amber Glass-120ML | CN/9010/04 | | S | COLD | 21-OCT-94 | 10-OCT-94 | STB | | (101990:100) |
| 1 | | PM/IT/04 | | S | COLD | 26-OCT-94 | 25-MAR-95 | STB | | (101990:100) |
| 6271-022 | 200093958 | | Solid | | 26-SEP-94 09:20 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-017 |
| 1 | AN - Amber Glass-120ML | PM/IT/04 | | S | COLD | 26-OCT-94 | 25-MAR-95 | STB | | (101991:100) |
| 1 | | S/9030/04 | | S | COLD | 21-OCT-94 | 03-OCT-94 | STB | | (101991:100) |
| 6271-023 | 200093959 | | Solid | | 26-SEP-94 09:20 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-018 |
| CLP FORMS | | | | | | | | | | |
| 1 | AN - Amber Glass-120ML | PAINT/9095/04 | | S | COLD | 21-OCT-94 | 24-OCT-94 | STB | | (101992:100) |
| 1 | | PH/9045/04 | | S | COLD | 21-OCT-94 | 10-OCT-94 | STB | | (101992:100) |
| 6271-024 | 200093950 | | Solid | | 26-SEP-94 09:20 | 29-SEP-94 09:00 | 28-OCT-94 | FED-EX | 3 | R2922-019 |
| CLP FORMS | | | | | | | | | | |
| 1 | AN - Amber Glass-500ml | EXTMETAL/TCLP/04 | | S | COLD | 20-JAN-95 | 24-OCT-94 | STB | | (101993:100) |
| 1 | | HG/7470/04 | | S | COLD | 21-OCT-94 | 24-OCT-94 | STB | | (101993:100) |
| 1 | | HG/TCLP/04 | | S | COLD | 20-JAN-95 | 24-OCT-94 | STB | | (101993:100) |
| 1 | | ICAP/6010/04 | | S | COLD | 21-OCT-94 | 25-MAR-95 | STB | | (101993:100) |
| 1 | | ICAP/TCLP/04 | | S | COLD | 20-JAN-95 | 25-MAR-95 | STB | | (101993:100) |
| 1 | | PM/IT/04 | | S | COLD | 26-OCT-94 | 25-MAR-95 | STB | | (101993:100) |

Sample has not been rad screened.



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Temp 5/6°C

Page 1 of 3

CUR#-1837

Fernald Environmental Restoration Management Corporation

RSO - ANALYTICAL LABORATORY SERVICES

# OFF-SITE LABORATORY CUSTODY TRANSFER AND ANALYSIS REQUEST RECORD (OCTR)

REFERENCE DOCUMENT NO: SAR/CR: SPL-94-6209

PURCHASE ORDER NO.: 434285

RELEASE NO.: 1000004052

SAMPLE SHIPMENT DATE: 9-28-94

SAMPLE SHIPPER: GORDON BELL

OFF-SITE LAB CONTACT: Bob White

FERMCO CONTACT/PHONE: Jenny Vance (513) 738-9028

REQUIRED REPORT DATE: NORMAL (PER C

SAMPLE TEAM: FOG

REPORT TO: FERMCO, P.O. BOX 398704, CINCINNATI, OH 45239-8704

RECEIVING LAB NAME: Quanterra St Louis

RECEIVING LAB ADDRESS: 13715 Rider Trail North - Earth City MO 63045

| | SAMPLE NUMBER | SAMPLE DESCRIPTION/TYPE/Matrix CODE | DATE/TIME COLLECTED | CONTAINER TYPE | SAMPLE VOLUME | PRESERVATION | ANALYSIS REQUESTED | % Full | CONDITION UPON RECEIPT Temp | PH |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 200093930/044801-001 | FB A | 9-26-94 0925 | GLS | 2x40ml | HCL+4°C | TBL 5 | 100 | 5°C | |
| 2 | 200093933/044801-001 | FB A | 9-26-94 0925 | GLS | 1x40ml | 4°C | TBL 22 | 100 | 5° | |
| 3 | 200093927/044801-001 | FB A | 9-26-94 0925 | PLS | 1x1L | $HNO_3$ | TBL 3 | 100 | 5° | 2 |
| 4 | 200093928/044801-001 | FB A | 9-26-94 0925 | AMB GLS | 1x1GAL | $HNO_3$ | TBL 12 | 100 | 5 | 2 |
| 5 | 200093929/044801-001 | FB A | 9-26-94 0925 | AMB GLS | 1x1GAL | 4°C | TBL 8 | 100 | 5 | |
| 6 | 200093935/044801-001 | TB A | 9-26-94 0800 | GLS | 3x40ml | HCL+4°C | TBL 5 | 100 | 5 | |
| 7 | 200093938/044801-002 | C | 9-26-94 0910 | GLS | 1x120ml | 4°C | TBL 12 | 90 | 6 | |
| 8 | 200093939/044801-002 | C | 9-26-94 0910 | GLS | 1x120ml | 4°C | TBL 8 | 90 | 6 | |
| 9 | 200093940/044801-002 | C | 9-26-94 0910 | GLS | 3x120ml | 4°C | TBL 5 | 90 | 6 | |
| 10 | 200093943/044801-002 | C | 9-26-94 0910 | GLS | 1x120ml | 4°C | TBL 22 | 90 | 6 | |
| 11 | 200093944/044801-002 | C | 9-26-94 0910 | GLS | 1x120ml | 4°C | TBL 49 | 90 | 6 | |

SPECIAL INSTRUCTIONS: FB = Field Blank TBL = TABLE

SAMPLE PLAN NUMBER: NA

PROJECT NAME: DETREX STILL 04.48.01

CHARGE NUMBER: 3BSU3

| CAN NO. | SEAL NO. | CAN NO. | SEAL NO. | CAN NO. | SEAL NO. | CAN NO. | SEAL NO. | CAN NO. | SEAL NO. | CAN NO. | SEAL NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Cooler Sealed with Custody Tape | | | | | | | |

| RELINQUISHED BY | DATE | TIME | RECEIVED BY | DATE | TIME |
|---|---|---|---|---|---|
| 1. Gordon Bell | 9-28-94 | 1300 | 1. Brad Mitchell | 9-29-94 | 0845 |
| 2. | | | 2. | | |
| 3. | | | 3. | | |

| NO. | DISTRIBUTION OF COPIES |
|---|---|

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FERMCO

Page 2 of 3

CUR# 1837

Fernald Environmental Restoration Management Corporation

RSO - ANALYTICAL LABORATORY SERVICES

# OFF-SITE LABORATORY CUSTODY TRANSFER AND ANALYSIS REQUEST RECORD (OCTR)

REFERENCE DOCUMENT NO: SAR/CR: SPL-94-6209

PURCHASE ORDER NO.: 434285

RELEASE NO.: 1000004052

SAMPLE SHIPMENT DATE: 9-28-94

SAMPLE SHIPPER: Gordon Bell

OFF-SITE LAB CONTACT: Bob White

FERMCO CONTACT/PHONE: Jenny Vance (513) 738-9028

REQUIRED REPORT DATE: Normal (Per Contract)

SAMPLE TEAM: F06

REPORT TO: FERMCO, P.O. BOX 398704, CINCINNATI, OH 45239-8704

RECEIVING LAB NAME: QUANTERRA - ST LOUIS

RECEIVING LAB ADDRESS: 13715 Rider Trail North - Earth City, MO 63045

| | SAMPLE NUMBER | SAMPLE DESCRIPTION/TYPE/CODE | DATE/TIME COLLECTED | CONTAINER TYPE | SAMPLE VOLUME | PRESERVATION | ANALYSIS REQUESTED | % Full | CONDITION UPON RECEIPT* |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 200093945/044801-002 | C | 9-26-94 0910 | GLS | 1x120ml | 4°C | TBL 15A | 95 | |
| 2 | 200093946/044801-002 | C | 9-26-94 0910 | GLS | 1x120ml | 4°C | TBL 15B | 95 | |
| 3 | 200093947/044801-002 | C | 9-26-94 0910 | GLS | 1x120ml | None | TBLS 16+40 | 95 | |
| 4 | 200093937/044801-002 | C | 9-26-94 0910 | GLS | 1x250ml | 4°C | TBL 3 | 95 | |
| 5 | 200093951/044801-002 | C | 9-26-94 0920 | GLS | 1x120ml | 4°C | TBL 22 | 95 | |
| 6 | 200093952/044801-002 | C | 9-26-94 0920 | GLS | 1x120ml | 4°C | TBL 8 | 95 | |
| 7 | 200093953/044801-002 | C | 9-26-94 0920 | GLS | 3x120ml | 4°C | TBL 5 | 95 | |
| 8 | 200093962/044801-002 | C | 9-26-94 0920 | GLS | 1x120ml | 4°C | TBL 22 | 95 | |
| 9 | 200093956/044801-002 | C | 9-26-94 0920 | GLS | 1x120ml | 4°C | TBL 49 | 95 | |
| 10 | 200093957/044801-002 | C | 9-26-94 0920 | GLS | 1x120ml | 4°C | TBL 15A | 95 | |
| 11 | 200093958/044801-002 | C | 9-26-94 0920 | GLS | 1x120ml | 4°C | TBL 15B | 95 | |

SPECIAL INSTRUCTIONS: TBL = Table

SAMPLE PLAN NUMBER: NA

PROJECT NAME: Detrex Still 04.48.01

CHARGE NUMBER: 3BSV3

| CAN NO. | SEAL NO. | CAN NO. | SEAL NO. | CAN NO. | SEAL NO. | CAN NO. | SEAL NO. | CAN NO. | SEAL NO. | CAN NO. | SEAL NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |

Coolers Sealed with Custody Tape

| RELINQUISHED | RELINQUISHED BY | DATE | TIME | RECEIVED | DATE | TIME | RECEIVED BY |
|---|---|---|---|---|---|---|---|
| 1. | Gordon Bell | 9-28-94 | 1300 | 1. | 9-29-94 | 0845 | Ard Mitchell |
| 2. | | | | 2. | | | |
| 3. | | | | 3. | | | |

| NO. | DISTRIBUTION OF COPIES | |
|---|---|---|
| 1 | WHITE | REMAIN WITH SAMPLES |
| 2 | YELLOW | OFF-SITE LAB |
| 3 | PINK | FERMCO DATA REVIEW AND REPORTING |

000814

000221

Temp 6c Curr 18.37

Fernald Environmental Restoration Management Corporation

RSO - ANALYTICAL LABORATORY SERVICES



# OFF-SITE LABORATORY CUSTODY TRANSFER AND ANALYSIS REQUEST RECORD (OCTR)

REFERENCE DOCUMENT NO: SAR/CR SPL-94-6209

PURCHASE ORDER NO.: 434285

RELEASE NO.: 1000004052

SAMPLE SHIPMENT DATE: 9-28-94

SAMPLE SHIPPER: GORDON BELL

OFF-SITE LAB CONTACT: Bob White

FERMCO CONTACT/PHONE: JENNY VANCE (513) 738-9028

REQUIRED REPORT DATE: Normal (Per Contract)

SAMPLE TEAM: FOG

REPORT TO: FERMCO, P O BOX 398704, CINCINNATI, OH 45239-8704

RECEIVING LAB NAME: Quanterra - St Louis

RECEIVING LAB ADDRESS: 13715 Rider Trail North - EARTH CITY, MO 63045

| | SAMPLE NUMBER | SAMPLE DESCRIPTION/TYPE/Matrix CODE | DATE/TIME COLLECTED | CONTAINER TYPE | SAMPLE VOLUME | PRESERVATION | ANALYSIS REQUESTED | % Fill | CONDITION UPON RECEIPT* |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2000 93959/044801-002 | C | 9-26-94 0920 | GLS | 1x120ml | None | TBLS 16+40 | 95 | |
| 2 | 2000 93960/044801-002 | C | 9-26-94 0920 | GLS | 1x500ml 9-27-94 | 4°C | TBL 3 | 95 | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |
| 11 | | | | | | | | | |

GCB 9-28-94

Nothing Follows

SPECIAL INSTRUCTIONS: TBL = Table

SAMPLE PLAN NUMBER: NA

PROJECT NAME: Detrex Still 04.48.01

CHARGE NUMBER: 3BSU3

| CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: | CAN NO.: | SEAL NO.: |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Coolers | Sealed | with | Custody | TAPE | | | | | |

| RELINQUISHED | | | RECEIVED | | |
|---|---|---|---|---|---|
| RELINQUISHED BY | DATE | TIME | DATE | TIME | RECEIVED BY |
| 1. Gordon Bell | 9-28-94 | 1300 | 1. 9-29-94 | 0845 | [illegible] |
| 2. | | | 2. | | |
| 3. | | | 3. | | |

NO. DISTRIBUTION OF COPIES

000815

Quanterra
Environmental Services

007211

C.U.R. and C.O.C.
COPIED TO: DK & KC
DATE: 9-29-94
TIME: 11:20
BY: 2m

Work Order No.: 6271

# Condition Upon Receipt Variance Report
## St. Louis Laboratory

Release 4052

Client: Fermco
Date: 9-29-94 08:45
Project No: 500.01
Initiated by: Jed Mitchell
Analysis Requested: Refer to RFA/COC
RFA/COC Numbers: SPL-94-6209
Client Sample Numbers Affected: Entire Login

Condition/Variance (Check all that apply): Circle Number to Denote that Item was Evaluated. "NA" = "Not Applicable".

1. NA Not enough sample received for proper analysis. Received approximately: _____
2. ☐ Sample received broken/leaking.
3. ☐ Sample received without proper preservative.
   - ☐ Cooler temperature not within 4°C ± 2°C. Record temperature: 5°C/6°C
   - ☐ pH _____
   - ☐ other: _____
4. ☐ Sample received in improper container.
5. ☐ Sample received without proper paperwork. Explain: _____
6. ☐ Paperwork received without sample.
7. ☐ No sample ID on sample container.
8. ☐ Custody tape disturbed/broken/missing.
9. NA Sample splits performed by lab.
10. NA Volatile sample received with approximately _____ mm headspace.
11. ☐ Sample ID on container does not match sample ID on paperwork. Explain: _____
12. ☐ All coolers on airbill not received with shipment.
13. ☐ Other (explain below): Shipping containers not rad surveyed.

Notes: 200093928 is improperly preserved w/ $HNO_3$. Do not use it for HERBS per client, use 200093929 instead.
SW 09/30/94

Corrective Action:

☐ Client's Name: _____ Informed verbally on: _____ By: _____
☐ Client's Name: _____ Informed in writing on: _____ By: _____

☐ Sample(s) processed "as is". Comments: _____
☐ Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor Review: (or designate) _____ Date: _____
Project Management Review: K R Olivapelli Date: 9-29-94

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

000816

FERMCO
P.O. BOX 398704
Cincinnati, OH. 45239-8704

**FACSIMILE LEAD SHEET**

**ACS Filing number 12.7.3.6**

No. of Pages(Including coversheet): 1

DATE: December 15, 1994

TO: Bob White

COMPANY NAME: Quanterra

LOCATION: Earth City, MO.

FAX NO. TO BE CALLED: (314) 298-8757 TELEPHONE NO.: (314) 298-8566

FROM: Larry Evans Fax NO.: (513) 738-6667
TELEPHONE NO.: (513) 738-9269

**********

**MESSAGE**

Log in 6271

**SUBJECT: Requesting additional support concerning releases 1-4052**

Bob,

If it would not be too much trouble, please check the concrete samples in th release for the sample volume available. FERMCO is likely to request TCLP meta analysis on these samples. Please let me know ASAP.

need 250

Thank you,

Larry Evans

100% Solids
Look up in TCLF

Client ID
9938 - 007
39 - 008
40 - 009
43 - 010 Dup/MS
44 - 011 Dup/MS
45 - 012 Dup/MS
46 - 013 Dup/MS
47 - 014
37 - 015
51 - 016
52 - 017
53 - 018
62 - 019
56 - 020
57 - 021
58 - 022
59 - 023
60 - 024

Check with Sample Control.

Quanterra Environmental Services

# ST. LOUIS, MO

## FAX TRANSMISSION

| | |
|---|---|
| TO: Larry Evans | |
| COMPANY: FERMCO | |
| FAX NUMBER: 513-738-6667 | |
| SENDER: Diane Mueller | |
| DATE: 12/19/94 | OPERATOR: DWM |
| TIME: 10:30 | NUMBER OF PAGES: 9 (INCLUDES COVER) |

St. Louis Laboratory

Fax Number: (314) 298-8757

If You Experience Trouble, Call (314) 298-8566

Subcontract Number 434285.....FERMCO Project 500.01

In response to your request of additional analysis for Release 4052(Login 6271) for TCLP metals on all concrete samples: 250 grams is needed for this analysis. There appears to be enough sample left to run this analysis for all samples except for FERMCO sample number 200093947/044801-002 (6271-014), all of the sample was used for the original analysis.

If you have any questions or require additional information, please contact me.

FERMCO
P.O. BOX 398704
Cincinnati, OH. 45239-8704

**FACSIMILE LEAD SHEET**

No. of Pages(Including coversheet): 1

DATE: December 21, 1994

TO: Bob White / Diane Mueller

COMPANY NAME: Quanterra

LOCATION: Earth City, MO.

FAX NO. TO BE CALLED: (314) 298-8757 TELEPHONE NO.: (314) 298-8566

FROM: Larry Evans Fax NO.: (513) 738-6667
TELEPHONE NO.: (513) 738-9269

**********

**MESSAGE**

**SUBJECT: Requesting Additional Analysis for releases 1000004052**

Bob or Diane,

TCLP METALS / BNA/TCLP/Q4 - 100
EXT/TCLP/Q4

Please add the request of table 2 and table 7 to the samples in this release as we have previously discussed. FERMCO achnowledges that these requests may be out of hold time, please proceed anyway! Our last communication concerning this release was on 12/19/94 from Diane Mueller. If you have any questions concerning which samples need to be analyzed or about obtaining adequate sample volume, please call me.

Thank you,

Larry Evans

1 - TAT -

2 - need 250 g for TCLP
need 100 g for TCL
(out of hold time)

3

Quanterra Environmental Services



# ST. LOUIS, MO

FAX TRANSMISSION

| | |
|---|---|
| TO: Larry Evans | |
| COMPANY: FERMCO | |
| FAX NUMBER: 513-738-6667 | |
| SENDER: Diane Mueller | |
| DATE: 12/22/94 | OPERATOR: DWM |
| TIME: 4:00 pm | NUMBER OF PAGES: 2 (INCLUDES COVER) |

St. Louis Laboratory

Fax Number: (314) 298-8757

If You Experience Trouble, Call (314) 298-8566

Subcontract Number 434285.....FERMCO Project 500.01

In reference to your fax received Wednesday December 21, 1994, at 19:12:

Originally you requested available volume for all concrete samples in release 4052 (Login 6271) to see if there is enough volume for TCLP metals (250 grams needed for this analysis). Your current fax in addition to the TCLP metals requests TCLP BNA analysis for the samples in this release.

I am assuming you are still only interested in the concrete samples for this release. TCLP BNA analysis requires 100 grams of sample. As you know, this analysis is out of hold time and can be run as is per your request. I cannot guarantee that there is

enough sample volume for both analysis. Do you want to set a priority to which analysis you want run first and then if there i enough sample volume left run the second analysis?

You request did not mention the TAT. We can only meet the norma 31 day TAT.

Please advise. I left a message on your answering machine also.

007211

FERMCO
P.O. BOX 398704
Cincinnati, OH. 45239-8704

**FACSIMILE LEAD SHEET**

No. of Pages(Including coversheet): 1

DATE: December 27, 1994

TO: Diane Mueller / Kathy Giacopelli

COMPANY NAME: Quanterra

LOCATION: Earth City, MO.

FAX NO. TO BE CALLED: (314) 298-8757 TELEPHONE NO.: (314) 298-8566

FROM: Larry Evans Fax NO.: (513) 738-6667
TELEPHONE NO.: (513) 738-9269

**********

**MESSAGE**

SUBJECT: Information concerning Additional Analysis in releases 1000004052

Kathy and Diane,

In response to Diane's Fax dated 12/22/94 FERMCO offers the following additional information. FERMCO requested that both the TCLP metals and TCLP BNA's be performed. There should be enough volume to achieve the minimum weight requirements for the TCLP extractions. The enclosed information should help guide you in achieving this volume requirements.

There are several sample bottles that can be used to achieve the required sample volume if necessary for these additional analysis requests. The sample bottles numbered 200093938, 2-93939, 2-93940, 2-93943, 2-93944, 2-93945, 2-93946, 2-93947 and 2-93937 comprise one sample point and may be used to achieve the required sample volume. Samples 200093950, 2-93951, 2-93952, 2-93953, 2-93956, 2-93957, 2-93958, 2-93959 and 200093962 comprise the second sample point that requires the additional analysis. Please note that only two samples require this additional analysis. Report the TCLP metals results under the FERMCO sample numbers of 200093937, for the first group of samples, and under 200093950, for the second group of samples. Report the TCLP BNAs under the FERMCO sample numbers 200093939 and 200093952 respectively.

If you have any questions or concerns, please call me.

Thank you,

Larry Evans

# CONVERSATION RECORD

TIME: 1:00

DATE: 12-27-94

PROJECT N: 500.

ROUT

NAME/SYMBO: Diane

TYPE

☐ VISIT ☐ CONFERENCE ☒ TELEPHONE

☒ INCOMING ☐ OUTGOING

Location of Visit/Conference:

| NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU | ORGANIZATION (Office, dept., bureau, etc.) | TELEPHONE NO. |
|---|---|---|
| Larry Evans / Jenny Vance | FERMCO | |

SUBJECT

Additional analyses on Release 4052
LI 6271

SUMMARY

TCLP Metals
200093937
200093950

TCLP BNA'S
200093939
200093952

Should be enough volume for analysis and QC. If not check other samples from same location.
Larry Evans will be sending a hardcopy of this request.

ACTION REQUIRED

| NAME OF PERSON DOCUMENTING CONVERSATION | SIGNATURE | DATE |
|---|---|---|
| Kathy Giacofelli | | 12-27-94 |

ACTION TAKEN

| SIGNATURE | TITLE | DATE |
|---|---|---|
| | | |

Quanterra Environmental Services

# ST. LOUIS, MO

FAX TRANSMISSION

| | |
|---|---|
| TO: Larry Evans | |
| COMPANY: FERMCO | |
| FAX NUMBER: 513-738-6667 | |
| SENDER: Diane Mueller | |
| DATE: 01/25/95 | OPERATOR: DWM |
| TIME: 9:15 | # OF PAGES INCLUDING COVER = 2 |

St. Louis Laboratory

Fax Number: (314) 298-8757

If You Experience Trouble, Call (314) 298-8566

Subcontract Number 434285.....FERMCO Project 500.01

In regards to the additional analysis requested for FERMCO Release 4052 for TCLP Metals and TCLP BNA, will the reporting format required be "B" as requested on the original Chain of Custody? Please confirm this as soon as you have time, the analysis is done and ready to be reported.

If you have any questions or require additional information, please contact me.

FERMCO
P.O. BOX 398704
Cincinnati, OH. 45239-8704

**FACSIMILE LEAD SHEET**

No. of Pages(Including coversheet): 1

DATE: January 25, 1995

TO: Diane Miller

COMPANY NAME: Quanterra

LOCATION: Earth City, MO.

FAX NO. TO BE CALLED: (314) 298-8757 TELEPHONE NO.: (314) 298-8566

FROM: Larry Evans Fax NO.: (513) 738-6667
TELEPHONE NO.: (513) 738-9269

**********

**MESSAGE**

LI 6271

**SUBJECT: Reporting Format for the Additional Analysis Requested in Release 1000004052**

Diane,

In response to your Fax dated 1/25/95, FERMCO requests that the reporting format of "B" to be produced.

If you have any questions or concerns, please call me.

Thank you,

Larry Evans

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052.1_____

SOW No.: SW846

| EPA Sample No. | Lab Sample ID |
|---|---|
| PBT55650 | PBT55650 |
| 200093937 | P6271-015 |
| 200093937D | P6271-015D |
| 200093937S | P6271-015S |
| 200093950 | P6271-024 |

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES

If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Diane W. Mueller Name: Diane W. Mueller

Date: 1-26-95 Title: Project Manager

COVER PAGE - IN TCLP

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO

PBT55650

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: 4052.1___

Matrix (soil/water): WATER Lab Sample ID: PBT55650

Level (low/med): LOW__ Date Received: 01/18/95

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic__ | 339 | U | | P_ |
| 7440-39-3 | Barium___ | 508 | B | | P_ |
| 7440-43-9 | Cadmium__ | 15.2 | U | | P_ |
| 7440-47-3 | Chromium_ | 11.6 | U | | P_ |
| 7439-92-1 | Lead____ | 148 | U | | P_ |
| 7439-97-6 | Mercury__ | 1.0 | U | | CV |
| 7782-49-2 | Selenium_ | 399 | U | | P_ |
| 7440-22-4 | Silver___ | 15.2 | U | | P_ |

Color Before: _____ Clarity Before: _____ Texture: ___

Color After: _____ Clarity After: _____ Artifacts: ___

Comments:

FORM I - IN

TCLP

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

200093937

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: 4052.1_____

Matrix (soil/water): WATER Lab Sample ID: P6271-015

Level (low/med): LOW__ Date Received: 09/29/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic__ | 339 | U | | P_ |
| 7440-39-3 | Barium___ | 278 | B | | P_ |
| 7440-43-9 | Cadmium__ | 15.2 | U | | P_ |
| 7440-47-3 | Chromium_ | 11.6 | U | | P_ |
| 7439-92-1 | Lead_____ | 148 | U | | P_ |
| 7439-97-6 | Mercury__ | 1.0 | U | | CV |
| 7782-49-2 | Selenium_ | 399 | U | | P_ |
| 7440-22-4 | Silver___ | 15.2 | U | | P_ |

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

FORM I - IN

TCLP

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO

200093950

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO__ Case No.:_____ SAS No.:_____ SDG No.: 4052.1___

Matrix (soil/water): WATER Lab Sample ID: P6271-02

Level (low/med): LOW__ Date Received: 09/29/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

| CAS No. | Analyte | Concentration | C | Q | M |
|---|---|---|---|---|---|
| 7440-38-2 | Arsenic | 339 | U | | P |
| 7440-39-3 | Barium | 208 | B | | P |
| 7440-43-9 | Cadmium | 15.2 | U | | P |
| 7440-47-3 | Chromium | 11.6 | U | | P |
| 7439-92-1 | Lead | 148 | U | | P |
| 7439-97-6 | Mercury | 1.0 | U | | CV |
| 7782-49-2 | Selenium | 399 | U | | P |
| 7440-22-4 | Silver | 15.2 | U | | P |

Color Before: _____ Clarity Before: _____ Texture: ___

Color After: _____ Clarity After: _____ Artifacts: ___

Comments:

FORM I - IN

TCLP

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052.1_____

Initial Calibration Source: SOL/L/SPX/IC

Continuing Calibration Source: SOL+/LL/SPX_

Concentration Units: ug/L

| Analyte | Initial Calibration True | Initial Calibration Found | Initial Calibration %R(1) | Continuing Calibration True | Continuing Calibration Found | Continuing Calibration %R(1) | Continuing Calibration Found | Continuing Calibration %R(1) | M |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 4000.0 | 4114.61 | 102.9 | 4000.0 | 4096.96 | 102.4 | 3948.07 | 98.7 | P |
| Barium | 4000.0 | 3836.69 | 95.9 | 4000.0 | 3863.76 | 96.6 | 3776.03 | 94.4 | P |
| Cadmium | 4000.0 | 3980.50 | 99.5 | 4000.0 | 3982.51 | 99.6 | 3909.76 | 97.7 | P |
| Chromium | 4000.0 | 3954.83 | 98.9 | 4000.0 | 3979.06 | 99.5 | 3880.11 | 97.0 | P |
| Lead | 4000.0 | 3954.47 | 98.9 | 4000.0 | 4009.90 | 100.2 | 3886.32 | 97.2 | P |
| Mercury | 6.0 | 6.02 | 100.3 | 4.0 | 4.07 | 101.8 | 4.15 | 103.8 | CV |
| Selenium | 4000.0 | 4111.93 | 102.8 | 4000.0 | 4172.71 | 104.3 | 4139.16 | 103.5 | P |
| Silver | 1000.0 | 1010.20 | 101.0 | 1000.0 | 1014.02 | 101.4 | 991.86 | 99.2 | P |

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

TCLP

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052.1__

Initial Calibration Source: SOL/L/SPX/IC

Continuing Calibration Source: SOL+/LL/SPX_

Concentration Units: ug/L

| Analyte | Initial Calibration True | Initial Calibration Found | Initial Calibration %R(1) | Continuing Calibration True | Continuing Calibration Found | Continuing Calibration %R(1) | Continuing Calibration Found | Continuing Calibration %R(1) |
|---|---|---|---|---|---|---|---|---|
| Arsenic | | | | 4000.0 | 3947.82 | 98.7 | | |
| Barium | | | | 4000.0 | 3640.84 | 91.0 | | |
| Cadmium | | | | 4000.0 | 3811.87 | 95.3 | | |
| Chromium | | | | 4000.0 | 3764.75 | 94.1 | | |
| Lead | | | | 4000.0 | 3814.14 | 95.4 | | |
| Mercury | | | | 4.0 | 4.16 | 104.0 | | |
| Selenium | | | | 4000.0 | 4231.22 | 105.8 | | |
| Silver | | | | 1000.0 | 962.84 | 96.3 | | |

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

TC

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052.1_____

Initial Calibration Source: SOL/L/SPX/IC

Continuing Calibration Source: SOL+/LL/SPX_

Concentration Units: ug/L

| Analyte | Initial Calibration True | Initial Calibration Found | Initial Calibration %R(1) | Continuing Calibration True | Continuing Calibration Found | Continuing Calibration %R(1) | Continuing Calibration Found | Continuing Calibration %R(1) | M |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 4000.0 | 4035.72 | 100.9 | 4000.0 | 4042.90 | 101.1 | | | P |
| Barium | 4000.0 | 3808.11 | 95.2 | 4000.0 | 3839.14 | 96.0 | | | P |
| Cadmium | 4000.0 | 3957.75 | 98.9 | 4000.0 | 3970.61 | 99.3 | | | P |
| Chromium | 4000.0 | 3963.42 | 99.1 | 4000.0 | 4018.61 | 100.5 | | | P |
| Lead | 4000.0 | 3987.34 | 99.7 | 4000.0 | 4007.71 | 100.2 | | | P |
| Mercury | | | | | | | | | NR |
| Selenium | 4000.0 | 4120.18 | 103.0 | 4000.0 | 4093.26 | 102.3 | | | P |
| Silver | 1000.0 | 1001.92 | 100.2 | 1000.0 | 1004.48 | 100.4 | | | P |

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN

TCLP

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 4052.1_____

AA CRDL Standard Source: SPX/SOL+/LL_

ICP CRDL Standard Source: SOL+/SPX____

Concentration Units: ug/L

| Analyte | CRDL Standard for AA | | | CRDL Standard for ICP | | | | |
|---|---|---|---|---|---|---|---|---|
| | True | Found | %R | True | Initial Found | %R | Final Found | %R |
| Arsenic | | | | | | | | |
| Barium | | | | | | | | |
| Cadmium | | | | | | | | |
| Chromium | | | | | | | | |
| Lead | | | | | | | | |
| Mercury | 0.2 | 0.21 | 105.0 | | | | | |
| Selenium | | | | | | | | |
| Silver | | | | | | | | |

FORM II (PART 2) - IN

TCLP

U.S. EPA - CLP

3
BLANKS

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052.1_____

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

| Analyte | Initial Calib. Blank (ug/L) | C | Continuing Calibration Blank (ug/L) 1 | C | 2 | C | 3 | C | Prepa-ration Blank | C | M |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 150.4 | B | 84.8 | U | 112.8 | B | 84.8 | U | 84.800 | U | P |
| Barium | 0.5 | U | 0.6 | B | 1.2 | B | 1.0 | B | 0.500 | U | P |
| Cadmium | 3.8 | U | 3.8 | U | 3.8 | U | 3.8 | U | 3.800 | U | P |
| Chromium | 2.9 | U | 2.9 | U | 2.9 | U | 2.9 | U | 2.900 | U | P |
| Lead | 37.0 | U | 37.0 | U | 37.0 | U | 37.0 | U | 37.000 | U | P |
| Mercury | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.100 | U | CV |
| Selenium | 99.8 | U | 99.8 | U | 146.3 | B | 140.6 | B | 99.800 | U | P |
| Silver | 3.8 | U | 3.8 | U | 3.8 | U | 3.8 | U | 3.800 | U | P |

FORM III - IN

TCLP

U.S. EPA - CLP

3
BLANKS

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052.1__

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

| Analyte | Initial Calib. Blank (ug/L) | C | Continuing Calibration Blank (ug/L) 1 | C | 2 | C | 3 | C | Prepa-ration Blank | C |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 84.8 | U | 84.8 | U | | | | | | |
| Barium | 0.9 | B | 0.7 | B | | | | | | |
| Cadmium | 3.8 | U | 3.8 | U | | | | | | |
| Chromium | 2.9 | U | 2.9 | U | | | | | | |
| Lead | 37.0 | U | 37.0 | U | | | | | | |
| Mercury | | | | | | | | | | |
| Selenium | 99.8 | U | 99.8 | U | | | | | | |
| Silver | 3.8 | U | 3.8 | U | | | | | | |

FORM III - IN

TC

U.S. EPA - CLP

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO__Case No.: _____ SAS No: _____ SDG No.: 4052.1_____

ICP ID Number: TJA1100_____ ICS Source: SOL+/SPX____

Concentration Units: ug/L

| Analyte | True Sol. A | True Sol. AB | Initial Found Sol. A | Initial Found Sol. AB | Initial Found %R | Final Found Sol. A | Final Found Sol. AB | Final Found %R |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 0 | 0 | 113 | -161.0 | | -177 | 25.9 | |
| Barium | 0 | 500 | 6 | 475.0 | 95.0 | 6 | 451.0 | 90.2 |
| Cadmium | 0 | 1000 | -2 | 962.6 | 96.3 | 4 | 916.5 | 91.6 |
| Chromium | 0 | 500 | -3 | 446.9 | 89.4 | -2 | 432.4 | 86.5 |
| Lead | 0 | 1000 | 34 | 945.5 | 94.6 | 9 | 888.7 | 88.9 |
| Mercury | | | | | | | | |
| Selenium | 0 | 0 | -260 | -73.5 | | -150 | -14.0 | |
| Silver | 0 | 1000 | -12 | 999.0 | 99.9 | -12 | 954.2 | 95.4 |

U.S. EPA - CLP

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO__Case No.: _____ SAS No: _____ SDG No.: 4052.1____

ICP ID Number: TJA1100_____ ICS Source: SOL+/SPX____

Concentration Units: ug/L

| Analyte | True Sol. A | True Sol. AB | Initial Found Sol. A | Initial Found Sol. AB | Initial Found %R | Final Found Sol. A | Final Found Sol. AB | Final Found %R |
|---|---|---|---|---|---|---|---|---|
| Arsenic | 0 | 0 | -500 | -294.6 | | | | |
| Barium | 0 | 500 | 6 | 477.2 | 95.4 | | | |
| Cadmium | 0 | 1000 | 10 | 960.4 | 96.0 | | | |
| Chromium | 0 | 500 | -4 | 455.3 | 91.1 | | | |
| Lead | 0 | 1000 | 4 | 960.2 | 96.0 | | | |
| Mercury | | | | | | | | |
| Selenium | 0 | 0 | 72 | -35.5 | | | | |
| Silver | 0 | 1000 | -11 | 991.5 | 99.2 | | | |

FORM IV - IN

TCL

000837

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

200093937S

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052.1_____

Matrix (soil/water): WATER_ Level (low/med): LOW__

% Solids for Sample: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

| Analyte | Control Limit %R | Spiked Sample Result (SSR) | C | Sample Result (SR) | C | Spike Added (SA) | %R | Q | M |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 75-125 | 4837.9000 | | 339.2000 | U | 5000.00 | 96.8 | | P |
| Barium | 75-125 | 4869.8900 | | 277.6400 | B | 5000.00 | 91.8 | | P |
| Cadmium | 75-125 | 944.6080 | | 15.2000 | U | 1000.00 | 94.5 | | P |
| Chromium | 75-125 | 4669.2480 | | 11.6000 | U | 5000.00 | 93.4 | | P |
| Lead | 75-125 | 4747.0600 | | 148.0000 | U | 5000.00 | 94.9 | | P |
| Mercury | 75-125 | 8.7700 | | 1.0000 | U | 10.00 | 87.7 | | CV |
| Selenium | 75-125 | 2455.8320 | | 399.2000 | U | 2000.00 | 122.8 | | P |
| Silver | 75-125 | 4719.5600 | | 15.2000 | U | 5000.00 | 94.4 | | P |

Comments:

FORM V (Part 1) - IN TCLP

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

200093937D

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 4052.1_____

Matrix (soil/water): WATER Level (low/med): _LOW__

% Solids for Sample: __0.0 % Solids for Duplicate: ___0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

| Analyte | Control Limit | Sample (S) | C | Duplicate (D) | C | RPD | Q | M |
|---|---|---|---|---|---|---|---|---|
| Arsenic | | 339.2000 | U | 339.2000 | U | | | P |
| Barium | 200.0 | 277.6400 | B | 254.9200 | B | 8.5 | | P |
| Cadmium | | 15.2000 | U | 15.2000 | U | | | P |
| Chromium | | 11.6000 | U | 11.6000 | U | | | P |
| Lead | | 148.0000 | U | 148.0000 | U | | | P |
| Mercury | | 1.0000 | U | 1.0000 | U | | | CV |
| Selenium | | 399.2000 | U | 399.2000 | U | | | P |
| Silver | | 15.2000 | U | 15.2000 | U | | | P |

FORM VI - IN

TCLP

U.S. EPA - CLP

7
LABORATORY CONTROL SAMPLE

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 4052.1_____

Solid LCS Source: _____

Aqueous LCS Source: SOL+_____

| Analyte | Aqueous (ug/L) True | Found | %R | Solid (mg/kg) True | Found | C | Limits | | %R |
|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 1000.0 | 1118.55 | 111.9 | | | | | | |
| Barium | 1000.0 | 948.26 | 94.8 | | | | | | |
| Cadmium | 1000.0 | 975.48 | 97.5 | | | | | | |
| Chromium | 1000.0 | 986.90 | 98.7 | | | | | | |
| Lead | 1000.0 | 998.31 | 99.8 | | | | | | |
| Mercury | | | | | | | | | |
| Selenium | 1000.0 | 1000.88 | 100.1 | | | | | | |
| Silver | 250.0 | 158.91 | 63.6 | | | | | | |

FORM VII - IN

TCLP

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 4052.1___

Solid LCS Source: _____

Aqueous LCS Source: SOL+_____

| Analyte | Aqueous (ug/L) True | Found | %R | Solid (mg/kg) True | Found | C | Limits | |
|---|---|---|---|---|---|---|---|---|
| Arsenic | | | | | | | | |
| Barium | | | | | | | | |
| Cadmium | | | | | | | | |
| Chromium | | | | | | | | |
| Lead | | | | | | | | |
| Mercury | 3.0 | 2.89 | 96.3 | | | | | |
| Selenium | | | | | | | | |
| Silver | | | | | | | | |

FORM VII - IN

TCLP

U.S. EPA - CLP

8
STANDARD ADDITION RESULTS

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052.1_____

Concentration Units: ug/L

| EPA Sample No. | An | 0 ADD ABS | 1 ADD CON | 1 ADD ABS | 2 ADD CON | 2 ADD ABS | 3 ADD CON | 3 ADD ABS | Final Conc. | r | Q |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |

FORM VIII - IN ILM03.0

U.S. EPA - CLP

10
Instrument Detection Limits (Quarterly)

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 4052.1_____

ICP ID Number: _____ Date: 10/01/94

Flame AA ID Number : PS200_____

Furnace AA ID Number : _____

| Analyte | Wave-length (nm) | Back-ground | CRDL (ug/L) | IDL (ug/L) | M |
|---|---|---|---|---|---|
| Arsenic | | | 500 | | NR |
| Barium | | | 200 | | NR |
| Cadmium | | | 5 | | NR |
| Chromium | | | 20 | | NR |
| Lead | | | 100 | | NR |
| Mercury | 253.70 | | 0.2 | 0.1 | CV |
| Selenium | | | 250 | | NR |
| Silver | | | 10 | | NR |

Comments:

FORM X - IN

TC

000843

U.S. EPA - CLP

10
Instrument Detection Limits (Quarterly)

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 4052.1_____

ICP ID Number: TJA1100_____ Date: 01/01/95

Flame AA ID Number : _____

Furnace AA ID Number : _____

| Analyte | Wave-length (nm) | Back-ground | CRDL (ug/L) | IDL (ug/L) | M |
|---|---|---|---|---|---|
| Arsenic | 193.70 | | 500 | 84.8 | P |
| Barium | 455.40 | | 200 | 0.5 | P |
| Cadmium | 228.80 | | 5 | 3.8 | P |
| Chromium | 267.72 | | 20 | 2.9 | P |
| Lead | 220.35 | | 100 | 37.0 | P |
| Mercury | | | 0.2 | | NR |
| Selenium | 196.03 | | 250 | 99.8 | P |
| Silver | 328.07 | | 10 | 3.8 | P |

Comments:

FORM X - IN TCLP

U.S. EPA - CLP

11A

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 4052.1_____

ICP ID Number: TJA1100_____ Date: 11/16/94

| Analyte | Wave-length (nm) | Interelement Correction Factors for : Al | Ca | Fe | Mg | NA |
|---|---|---|---|---|---|---|
| Arsenic | 193.70 | 0.0055600 | 0.0000000 | 0.0000000 | -0.0008500 | 0.000 |
| Barium | 455.40 | 0.0000100 | 0.0000000 | 0.0000000 | 0.0000000 | 0.000 |
| Cadmium | 228.80 | 0.0000000 | 0.0000000 | 0.0000000 | -0.0000300 | 0.000 |
| Chromium | 267.72 | 0.0000000 | -0.0000300 | 0.0000000 | 0.0000000 | 0.000 |
| Lead | 220.35 | 0.0011000 | 0.0000000 | 0.0000000 | 0.0000800 | 0.000 |
| Mercury | | | | | | |
| Selenium | 196.03 | -0.0000300 | -0.0001800 | -0.0016100 | -0.0002200 | 0.000 |
| Silver | 328.07 | 0.0000000 | -0.0000320 | -0.0002700 | 0.0000000 | 0.000 |

Comments:

FORM XI (Part 1) - IN TC

U.S. EPA - CLP

11B
ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 4052.1_____

ICP ID Number: TJA1100_____ Date: 11/16/94

| Analyte | Wave-length (nm) | Interelement Correction Factors for : TH_ | U__ | ___ | ___ | ___ |
|---|---|---|---|---|---|---|
| Arsenic | 193.70 | -0.0008100 | 0.0019700 | | | |
| Barium | 455.40 | 0.0002900 | 0.0000500 | | | |
| Cadmium | 228.80 | 0.0000000 | -0.0001400 | | | |
| Chromium | 267.72 | 0.0023100 | -0.0031300 | | | |
| Lead | 220.35 | -0.0019800 | 0.0003100 | | | |
| Mercury | | | | | | |
| Selenium | 196.03 | -0.0050200 | -0.0004000 | | | |
| Silver | 328.07 | 0.0018600 | 0.0032200 | | | |

Comments:

U.S. EPA - CLP

12
ICP LINEAR RANGES (QUARTERLY)

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO_ Case No.: _____ SAS No.: _____ SDG No.: 4052.1_____

ICP ID Number: TJA1100_____ Date: 01/01/95

| Analyte | Integ. Time (sec.) | Concentration (ug/L) | M |
|---|---|---|---|
| Arsenic | 5.00 | 25000.0 | P |
| Barium | 5.00 | 100000.0 | P |
| Cadmium | 5.00 | 25000.0 | P |
| Chromium | 5.00 | 25000.0 | P |
| Lead | 5.00 | 25000.0 | P |
| Mercury | | | NR |
| Selenium | 5.00 | 100000.0 | P |
| Silver | 5.00 | 5000.0 | P |

Comments:

FORM XII - IN TCLP

U.S. EPA - CLP

13
PREPARATION LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052.1_____

Method: P_

| EPA Sample No. | Preparation Date | Weight (gram) | Volume (mL) |
|---|---|---|---|
| 200093937 | 01/05/95 | | 100 |
| 200093937D | 01/05/95 | | 100 |
| 200093937S | 01/05/95 | | 100 |
| 200093950 | 01/05/95 | | 100 |
| LCSW55937 | 01/05/95 | | 100 |
| PBT55650 | 01/05/95 | | 100 |
| PBW55937 | 01/05/95 | | 100 |

FORM XIII - IN TCLP

U.S. EPA - CLP

13
PREPARATION LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052.1_____

Method: CV

| EPA Sample No. | Preparation Date | Weight (gram) | Volume (mL) |
|---|---|---|---|
| 200093937 | 01/05/95 | | 100 |
| 200093937D | 01/05/95 | | 100 |
| 200093937S | 01/05/95 | | 100 |
| 200093950 | 01/05/95 | | 100 |
| LCSW55920 | 01/05/95 | | 100 |
| PBT55650 | 01/05/95 | | 100 |
| PBW55920 | 01/05/95 | | 100 |

FORM XIII - IN TCLP

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052.1_____

Instrument ID Number: PS200_____ Method: CV

Start Date: 01/05/95 End Date: 01/05/95

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | | |
| S0 | 1.00 | 0902 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S0.5 | 1.00 | 0904 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S1 | 1.00 | 0906 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S2 | 1.00 | 0909 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S5 | 1.00 | 0912 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S10 | 1.00 | 0914 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ICV | 1.00 | 0917 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ICB | 1.00 | 0920 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CRA | 1.00 | 0922 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCV | 1.00 | 0925 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCB | 1.00 | 0927 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PBW55920 | 1.00 | 0930 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| LCSW55920 | 1.00 | 0932 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 0934 | | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 0937 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 0939 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 0942 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 0944 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 0946 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 0948 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 0951 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCV | 1.00 | 0953 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CCB | 1.00 | 0956 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 0958 | | - | - | - | - | - | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1000 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1002 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ZZZZZZ | 1.00 | 1005 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| PBT55650 | 1.00 | 1007 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 200093937 | 1.00 | 1009 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 200093937D | 1.00 | 1011 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 200093937S | 1.00 | 1013 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 200093950 | 1.00 | 1016 | | - | - | - | - | - | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

FORM XIV - IN TCLP

U.S. EPA - CLP

14

ANALYSIS RUN LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052.1_

Instrument ID Number: PS200_____ Method: CV

Start Date: 01/05/95 End Date: 01/05/95

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1018 | | | | | | | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 1020 | | | | | | | X | | | | | | | | | | | | | | | |
| CCB | 1.00 | 1023 | | | | | | | X | | | | | | | | | | | | | | | |

FORM XIV - IN

T

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052.1_____

Instrument ID Number: TJA1100_____ Method: P_

Start Date: 01/05/95 End Date: 01/05/95

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | |
| S0 | 1.00 | 1633 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| S | 1.00 | 1635 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| S | 1.00 | 1638 | | | | | | | | | | | | | | | | | | | | | | | |
| S | 1.00 | 1641 | | | | | | | | | | | | | | | | | | | | | | | |
| S | 1.00 | 1644 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| ICV | 1.00 | 1649 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| ICB | 1.00 | 1652 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| ICSA | 1.00 | 1655 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| ICSAB | 1.00 | 1657 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| PBW55937 | 1.00 | 1700 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| LCSW55937 | 1.00 | 1703 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1706 | | | | | | | | | | | | | | | | | | | | | | | |
| 200093937 | 1.00 | 1709 | | | | | | | | | | | | | | | | | | | | | | | |
| 200093937S | 1.00 | 1712 | | | X | | | | | | | | | | | | | | | | | | | | |
| 200093937D | 1.00 | 1715 | | | | | | | | | | | | | | | | | | | | | | | |
| PBT55650 | 1.00 | 1718 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1720 | | | | | | | | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 1723 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| CCB | 1.00 | 1726 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| 200093950 | 1.00 | 1729 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1732 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1735 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1738 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1741 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1743 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1746 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1749 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1752 | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1756 | | | | | | | | | | | | | | | | | | | | | | | |
| CCV | 1.00 | 1759 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| CCB | 1.00 | 1802 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 1805 | | | | | | | | | | | | | | | | | | | | | | | |

FORM XIV - IN TCLP

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052.1_

Instrument ID Number: TJA1100_____ Method: P_

Start Date: 01/05/95 End Date: 01/05/95

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | |
| 200093937 | 4.00 | 1808 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | |
| 200093937S | 4.00 | 1811 | | X | | X | X | X | | X | X | | | | | | | | | | | | | |
| 200093937D | 4.00 | 1814 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | |
| 200093950 | 4.00 | 1817 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | |
| ICSA | 1.00 | 1820 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | |
| ICSAB | 1.00 | 1822 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | |
| CCV | 1.00 | 1825 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | |
| CCB | 1.00 | 1828 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | |

FORM XIV - IN T

000853

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: ITAS_ST._LOUIS_____ Contract: 500.001___

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: 4052.1_____

Instrument ID Number: TJA1100_____ Method: P_

Start Date: 01/06/95 End Date: 01/06/95

| EPA Sample No. | D/F | Time | % R | Analytes | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AS | BA | CD | CR | PB | HG | SE | AG | | | | | | | | | | | | | | | |
| S0 | 1.00 | 0335 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | | |
| S | 1.00 | 0338 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | | |
| S | 1.00 | 0340 | | | | | | | | | | | | | | | | | | | | | | | | |
| S | 1.00 | 0343 | | | | | | | | | | | | | | | | | | | | | | | | |
| S | 1.00 | 0346 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | | |
| ICV | 1.00 | 0349 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | | |
| ICB | 1.00 | 0352 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | | |
| ICSA | 1.00 | 0355 | | | | | | | | | | | | | | | | | | | | | | | | |
| ICSAB | 1.00 | 0357 | | | | | | | | | | | | | | | | | | | | | | | | |
| PBT55650 | 4.00 | 0400 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 0403 | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 0406 | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 0409 | | | | | | | | | | | | | | | | | | | | | | | | |
| ZZZZZZ | 1.00 | 0412 | | | | | | | | | | | | | | | | | | | | | | | | |
| ICSA | 1.00 | 0415 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | | |
| ICSAB | 1.00 | 0418 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | | |
| CCV | 1.00 | 0420 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | | |
| CCB | 1.00 | 0423 | | X | X | X | X | X | | X | X | | | | | | | | | | | | | | | |

FORM XIV - IN TCLP

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S27108 SAS No.: SDG No.: 405

| | EPA SAMPLE NO. | S1 (NBZ)# | S2 (FBP)# | S3 (TPH)# | S4 (PHL)# | S5 (2FP)# | S6 (TBP)# | OTHER |
|---|---|---|---|---|---|---|---|---|
| 01 | 200093939 | 85 | 74 | 73 | 50 | 65 | 81 | 0 |
| 02 | 200093939DL | 89 | 81 | 74 | 46 | 59 | 80 | 0 |
| 03 | 200093952 | 83 | 74 | 78 | 52 | 65 | 80 | 0 |
| 04 | 200093952DL | 90 | 84 | 82 | 50 | 65 | 87 | 0 |
| 05 | SSPK01 | 84 | 72 | 63 | 49 | 63 | 74 | 0 |
| 06 | 200093952MS | 92 | 87 | 78 | 51 | 64 | 85 | 0 |
| 07 | 200093952MSD | 91 | 87 | 79 | 37 | 48 | 88 | 0 |
| 08 | SBLK01 | 79 | 62 | 58 | 43 | 57 | 66 | 0 |

| | | QC LIMITS |
|---|---|---|
| S1 (NBZ) | = Nitrobenzene-d5 | ( 35-114) |
| S2 (FBP) | = 2-Fluorobiphenyl | ( 43-116) |
| S3 (TPH) | = Terphenyl | ( 33-141) |
| S4 (PHL) | = Phenol-d5 | ( 10-94 ) |
| S5 (2FP) | = 2-Fluorophenol | ( 21-100) |
| S6 (TBP) | = 2,4,6-Tribromophenol | ( 10-123) |

# Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogates diluted out

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S27108 SAS No.: SDG No.: 4052.1

Lab File ID: A7608 Lab Sample ID: QCBLK55660

Date Extracted: 01/10/95 Extraction:(SepF/Cont/Sonc) SEPF

Date Analyzed: 01/12/95 Time Analyzed: 1625

Matrix: (soil/water) WATER Level:(low/med) LOW

Instrument ID: MSA

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

| | EPA SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED |
|---|---|---|---|---|
| 01 | 200093939 | 6271-008 | A7614 | 01/12/95 |
| 02 | 200093939DL | 6271-008DL | A7626 | 01/13/95 |
| 03 | 200093952 | 6271-017 | A7615 | 01/12/95 |
| 04 | 200093952DL | 6271-017DL | A7627 | 01/13/95 |
| 05 | SSPK01 | QCSPK56265 | A7610 | 01/12/95 |
| 06 | 200093952MS | 6271-017MS | A7628 | 01/13/95 |
| 07 | 200093952MSD | 6271-017MSD | A7629 | 01/13/95 |

COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAM

SBLK01

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S27108 SAS No.: SDG No.: 405

Matrix: (soil/water) WATER Lab Sample ID: QCBLK55

Sample wt/vol: 250.0 (g/mL) ML Lab File ID: A7608

Level: (low/med) LOW Date Received:

% Moisture: not dec. dec. Date Extracted: 01/10/9

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/12/9

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 40 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 40 | U |
| 95-48-7 | 2-Methylphenol | 40 | U |
| 106-44-5 | 4-Methylphenol | 40 | U |
| 67-72-1 | Hexachloroethane | 40 | U |
| 98-95-3 | Nitrobenzene | 40 | U |
| 87-68-3 | Hexachlorobutadiene | 40 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 40 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 40 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 40 | U |
| 118-74-1 | Hexachlorobenzene | 40 | U |
| 87-86-5 | Pentachlorophenol | 200 | U |

9B-LCS
BNA WATER LCS RECOVERY

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S27108 SAS No.: SDG No.: 4052.1

EPA Sample No.: SSPK01 Level:(low/med) LOW

| COMPOUND | SPIKE ADDED (ug/L) | LCS CONCENTRATION (ug/L) | LCS % REC # | QC LIMITS REC. |
|---|---|---|---|---|
| Pyridine | 250 | 140 | 57 | 1-115 |
| 1,4-Dichlorobenzene | 250 | 160 | 62 | 20-124 |
| 2-Methylphenol | 250 | 220 | 86 | 35-131 |
| 4-Methylphenol (1) | 500 | 350 | 71 | 28-116 |
| Hexachloroethane | 250 | 120 | 48 | 40-113 |
| Nitrobenzene | 250 | 200 | 81 | 35-180 |
| Hexachlorobutadiene | 250 | 110 | 44 | 24-116 |
| 2,4,6-Trichlorophenol | 250 | 210 | 84 | 37-144 |
| 2,4,5-Trichlorophenol | 250 | 200 | 82 | 40-139 |
| 2,4-Dinitrotoluene | 65 | 52 | 81 | 39-139 |
| Hexachlorobenzene | 65 | 56 | 86 | 1-152 |
| Pentachlorophenol | 250 | 200 | 81 | 14-176 |

\# Column to be used to flag recovery values with an asterisk.
* Values outside of QC limits.
D Detected.
NG: Not Given. Determined by QC Charting Procedures.

(1) 4-Methylphenol and 3-Methylphenol co-elute; spike added reflects equal portions of each.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAM

SSPK01

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S27108 SAS No.: SDG No.: 405

Matrix: (soil/water) WATER Lab Sample ID: QCSPK56

Sample wt/vol: 250.0 (g/mL) ML Lab File ID: A7610

Level: (low/med) LOW Date Received:

% Moisture: not dec. dec. Date Extracted: 01/10/9

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/12/9

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 140 | |
| 106-46-7 | 1,4-Dichlorobenzene | 160 | |
| 95-48-7 | 2-Methylphenol | 220 | |
| 106-44-5 | 4-Methylphenol | 350 | E |
| 67-72-1 | Hexachloroethane | 120 | |
| 98-95-3 | Nitrobenzene | 200 | |
| 87-68-3 | Hexachlorobutadiene | 110 | |
| 88-06-2 | 2,4,6-Trichlorophenol | 210 | |
| 95-95-4 | 2,4,5-Trichlorophenol | 210 | |
| 121-14-2 | 2,4-Dinitrotoluene | 53 | |
| 118-74-1 | Hexachlorobenzene | 56 | |
| 87-86-5 | Pentachlorophenol | 200 | |

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE N

200093939

o Name: ITAS-ST.LOUIS Contract: 500-01

o Code: ITSL Case No.: S27108 SAS No.: SDG No.: 4052.1

trix: (soil/water) WATER Lab Sample ID: 6271-008

mple wt/vol: 250.0 (g/mL) ML Lab File ID: A7614

vel: (low/med) LOW Date Received: 09/29/94

Moisture: not dec. dec. Date Extracted: 01/10/95

traction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/12/95

C Cleanup: (Y/N) N pH: Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 40 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 40 | U |
| 95-48-7 | 2-Methylphenol | 6 | J |
| 106-44-5 | 4-Methylphenol | 480 | E |
| 67-72-1 | Hexachloroethane | 40 | U |
| 98-95-3 | Nitrobenzene | 40 | U |
| 87-68-3 | Hexachlorobutadiene | 40 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 40 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 40 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 40 | U |
| 118-74-1 | Hexachlorobenzene | 40 | U |
| 87-86-5 | Pentachlorophenol | 17 | J |

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAM

200093

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S27108 SAS No.: SDG No.: 405

Matrix: (soil/water) WATER Lab Sample ID: 6271-01

Sample wt/vol: 250.0 (g/mL) ML Lab File ID: A7615

Level: (low/med) LOW Date Received: 09/29/9

% Moisture: not dec. dec. Date Extracted: 01/10/9

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/12/9

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 40 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 40 | U |
| 95-48-7 | 2-Methylphenol | 4 | J |
| 106-44-5 | 4-Methylphenol | 510 | E |
| 67-72-1 | Hexachloroethane | 40 | U |
| 98-95-3 | Nitrobenzene | 40 | U |
| 87-68-3 | Hexachlorobutadiene | 40 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 40 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 40 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 40 | U |
| 118-74-1 | Hexachlorobenzene | 40 | U |
| 87-86-5 | Pentachlorophenol | 200 | U |

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE N
200093939DL

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S27108 SAS No.: SDG No.: 4052.1

Matrix: (soil/water) WATER Lab Sample ID: 6271-008DL

Sample wt/vol: 250.0 (g/mL) ML Lab File ID: A7626

Level: (low/med) LOW Date Received: 09/29/94

% Moisture: not dec. dec. Date Extracted: 01/10/95

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/13/95

GPC Cleanup: (Y/N) N pH: Dilution Factor: 4.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 160 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 160 | U |
| 95-48-7 | 2-Methylphenol | 160 | U |
| 106-44-5 | 4-Methylphenol | 490 | D |
| 67-72-1 | Hexachloroethane | 160 | U |
| 98-95-3 | Nitrobenzene | 160 | U |
| 87-68-3 | Hexachlorobutadiene | 160 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 160 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 160 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 160 | U |
| 118-74-1 | Hexachlorobenzene | 160 | U |
| 87-86-5 | Pentachlorophenol | 800 | U |

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SA

20009

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S27108 SAS No.: SDG No.: 40

Matrix: (soil/water) WATER Lab Sample ID: 6271-0

Sample wt/vol: 250.0 (g/mL) ML Lab File ID: A7627

Level: (low/med) LOW Date Received: 09/29/

% Moisture: not dec. dec. Date Extracted: 01/10/

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/13/

GPC Cleanup: (Y/N) N pH: Dilution Factor: 4.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | ( |
|---|---|---|---|
| 110-86-1 | Pyridine | 160 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 160 | U |
| 95-48-7 | 2-Methylphenol | 160 | U |
| 106-44-5 | 4-Methylphenol | 580 | D |
| 67-72-1 | Hexachloroethane | 160 | U |
| 98-95-3 | Nitrobenzene | 160 | U |
| 87-68-3 | Hexachlorobutadiene | 160 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 160 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 160 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 160 | U |
| 118-74-1 | Hexachlorobenzene | 160 | U |
| 87-86-5 | Pentachlorophenol | 800 | U |

3J

# TCLP SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Name: ITAS-ST.LOUIS Contract: 500-01

Code: ITSL Case No.: S27108 SDG No.: 4052.1

rix Spike - EPA Sample No.: 200093939

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE CONCENTRATION (ug/L) | MS CONCENTRATION (ug/L) | MS % REC # | QC LIMI REC |
|---|---|---|---|---|---|
| yridine | 250 | 0 | 110 | 44 | 1-1 |
| ,4-Dichlorobenzene | 250 | 0 | 180 | 74 | 20-1 |
| -Methylphenol | 250 | 0 | 240 | 97 | 35-1 |
| -Methylphenol (1) | 500 | 580 | 900 | 66 | 28-1 |
| exachloroethane | 250 | 0 | 170 | 68 | 40-1 |
| itrobenzene | 250 | 0 | 250 | 100 | 35-1 |
| exachlorobutadiene | 250 | 0 | 160 | 66 | 24-1 |
| ,4,6-Trichlorophenol | 250 | 0 | 240 | 96 | 37-1 |
| ,4,5-Trichlorophenol | 250 | 0 | 220 | 87 | 40-1 |
| ,4-Dinitrotoluene | 65 | 0 | 54 | 83 | 39-1 |
| exachlorobenzene | 65 | 0 | 58 | 89 | 1-1 |
| entachlorophenol | 250 | 0 | 260 | 103 | 14-1 |

| COMPOUND | SPIKE ADDED (ug/L) | MSD CONCENTRATION (ug/L) | MSD % REC # | % RPD | QC LIMITS RPD | QC LIMITS REC. |
|---|---|---|---|---|---|---|
| yridine | 250 | 94 | 38 | 15 | - | 1-1 |
| ,4-Dichlorobenzene | 250 | 37 | 15 * | 132 | - | 20-1 |
| -Methylphenol | 250 | 170 | 68 | 35 | - | 35-1 |
| -Methylphenol (1) | 500 | 640 | 13 * | 134 | - | 28-1 |
| exachloroethane | 250 | 120 | 49 | 32 | - | 40-1 |
| itrobenzene | 250 | 260 | 102 | 2 | - | 35-1 |
| exachlorobutadiene | 250 | 160 | 63 | 5 | - | 24-1 |
| ,4,6-Trichlorophenol | 250 | 250 | 100 | 4 | - | 37-1 |
| ,4,5-Trichlorophenol | 250 | 220 | 88 | 1 | - | 40-1 |
| ,4-Dinitrotoluene | 65 | 54 | 83 | 0 | - | 39-1 |
| exachlorobenzene | 65 | 60 | 92 | 3 | - | 1-1 |
| entachlorophenol | 250 | 270 | 107 | 4 | - | 14-1 |

Column to be used to flag recovery values with an asterisk.
Values outside of QC limits.
Detected.
Not Given. Determined by QC Charting Procedures.

4-Methylphenol and 3-Methylphenol co-elute.
Spike added is the total of equal portions of each.

ke Recovery: 2 out of 24 outside limits

FORM III BNA

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SA

20009

Lab Name: ITAS-ST.LOUIS Contract: 500-01

Lab Code: ITSL Case No.: S27108 SAS No.: SDG No.: 40

Matrix: (soil/water) WATER Lab Sample ID: 6271-0

Sample wt/vol: 250.0 (g/mL) ML Lab File ID: A7628

Level: (low/med) LOW Date Received: 09/29/

% Moisture: not dec. dec. Date Extracted: 01/10/

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/13/

GPC Cleanup: (Y/N) N pH: Dilution Factor: 4.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | |
|---|---|---|---|
| 110-86-1 | Pyridine | 110 | J |
| 106-46-7 | 1,4-Dichlorobenzene | 180 | |
| 95-48-7 | 2-Methylphenol | 240 | |
| 106-44-5 | 4-Methylphenol | 900 | |
| 67-72-1 | Hexachloroethane | 170 | |
| 98-95-3 | Nitrobenzene | 250 | |
| 87-68-3 | Hexachlorobutadiene | 160 | |
| 88-06-2 | 2,4,6-Trichlorophenol | 240 | |
| 95-95-4 | 2,4,5-Trichlorophenol | 220 | |
| 121-14-2 | 2,4-Dinitrotoluene | 54 | J |
| 118-74-1 | Hexachlorobenzene | 58 | J |
| 87-86-5 | Pentachlorophenol | 260 | J |

FORM I SV-1

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO

200093952MSD

Name: ITAS-ST.LOUIS Contract: 500-01

Code: ITSL Case No.: S27108 SAS No.: SDG No.: 4052.1

rix: (soil/water) WATER Lab Sample ID: 6271-017MSD

ple wt/vol: 250.0 (g/mL) ML Lab File ID: A7629

el: (low/med) LOW Date Received: 09/29/94

oisture: not dec. dec. Date Extracted: 01/10/95

raction: (SepF/Cont/Sonc) SEPF Date Analyzed: 01/13/95

Cleanup: (Y/N) N pH: Dilution Factor: 4.0

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L | Q |
|---|---|---|---|
| 110-86-1 | Pyridine | 94 | J |
| 106-46-7 | 1,4-Dichlorobenzene | 37 | J |
| 95-48-7 | 2-Methylphenol | 170 | |
| 106-44-5 | 4-Methylphenol | 640 | |
| 67-72-1 | Hexachloroethane | 120 | J |
| 98-95-3 | Nitrobenzene | 260 | |
| 87-68-3 | Hexachlorobutadiene | 160 | |
| 88-06-2 | 2,4,6-Trichlorophenol | 250 | |
| 95-95-4 | 2,4,5-Trichlorophenol | 220 | |
| 121-14-2 | 2,4-Dinitrotoluene | 54 | J |
| 118-74-1 | Hexachlorobenzene | 60 | J |
| 87-86-5 | Pentachlorophenol | 270 | J |

# ATTACHMENT E

# CONCRETE SCABBLING DATA

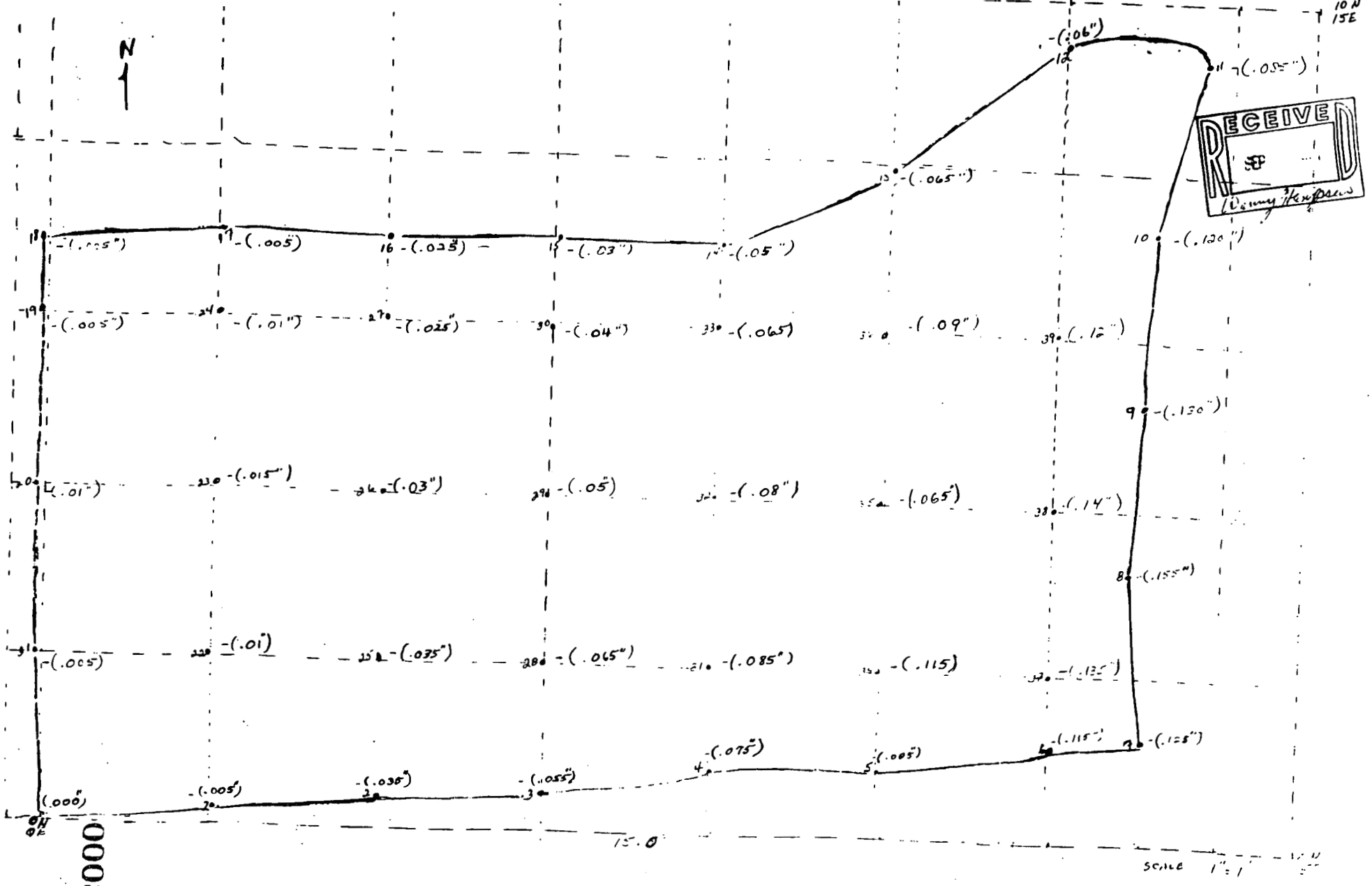
**Item 1 - Site Media Sampling Scabbling Elevation Survey Report**

**Item 2 - Summary of Elevations After First Two Scabbling Passes**

**Item 3 - Summary of Elevations After Final Scabbling Pass**

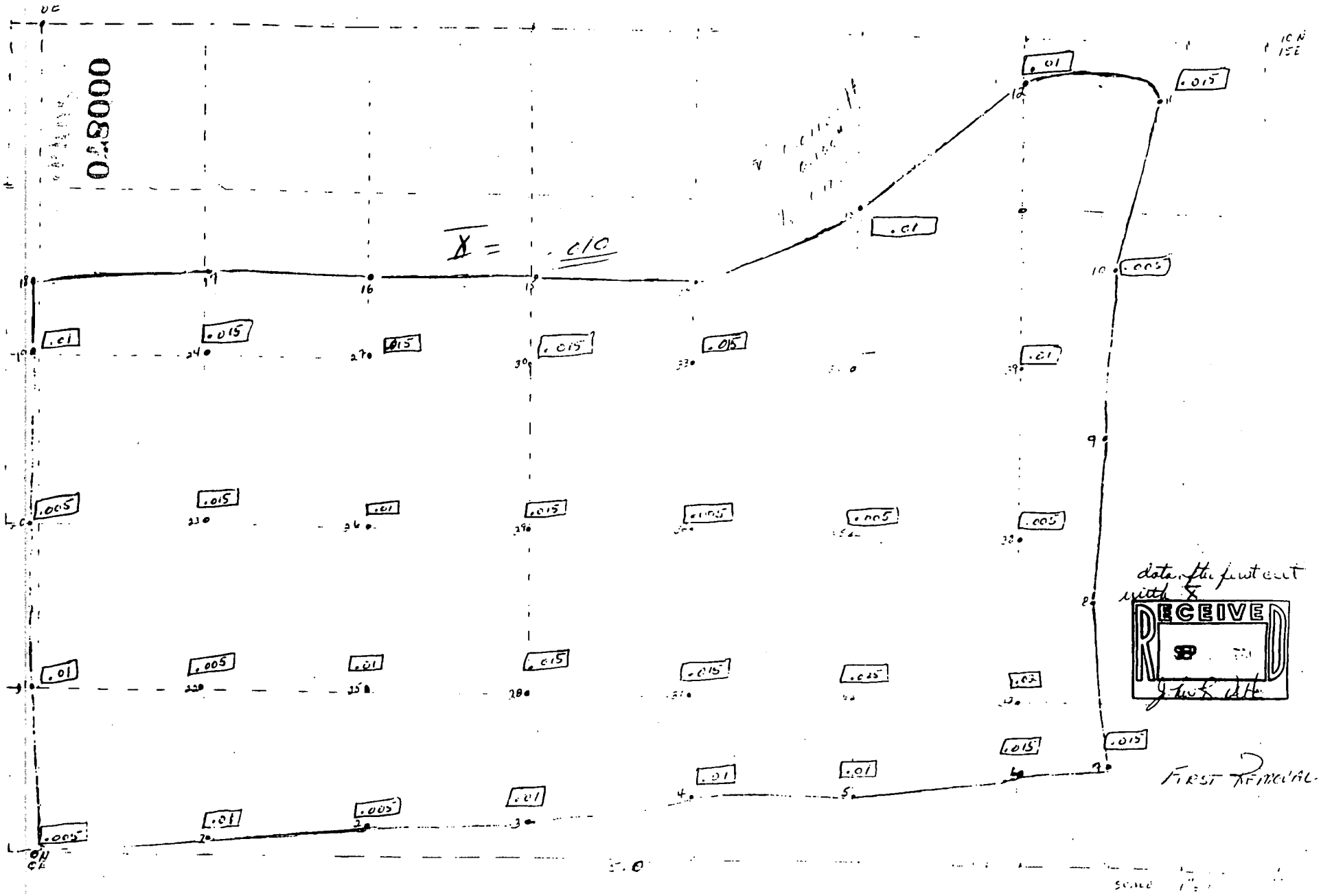
ENSERCH ENVIRONMENTAL
DETREX STILL - HAZARDOUS WASTE MANAGEMENT UNIT No. 26
CERTIFICATION REPORT

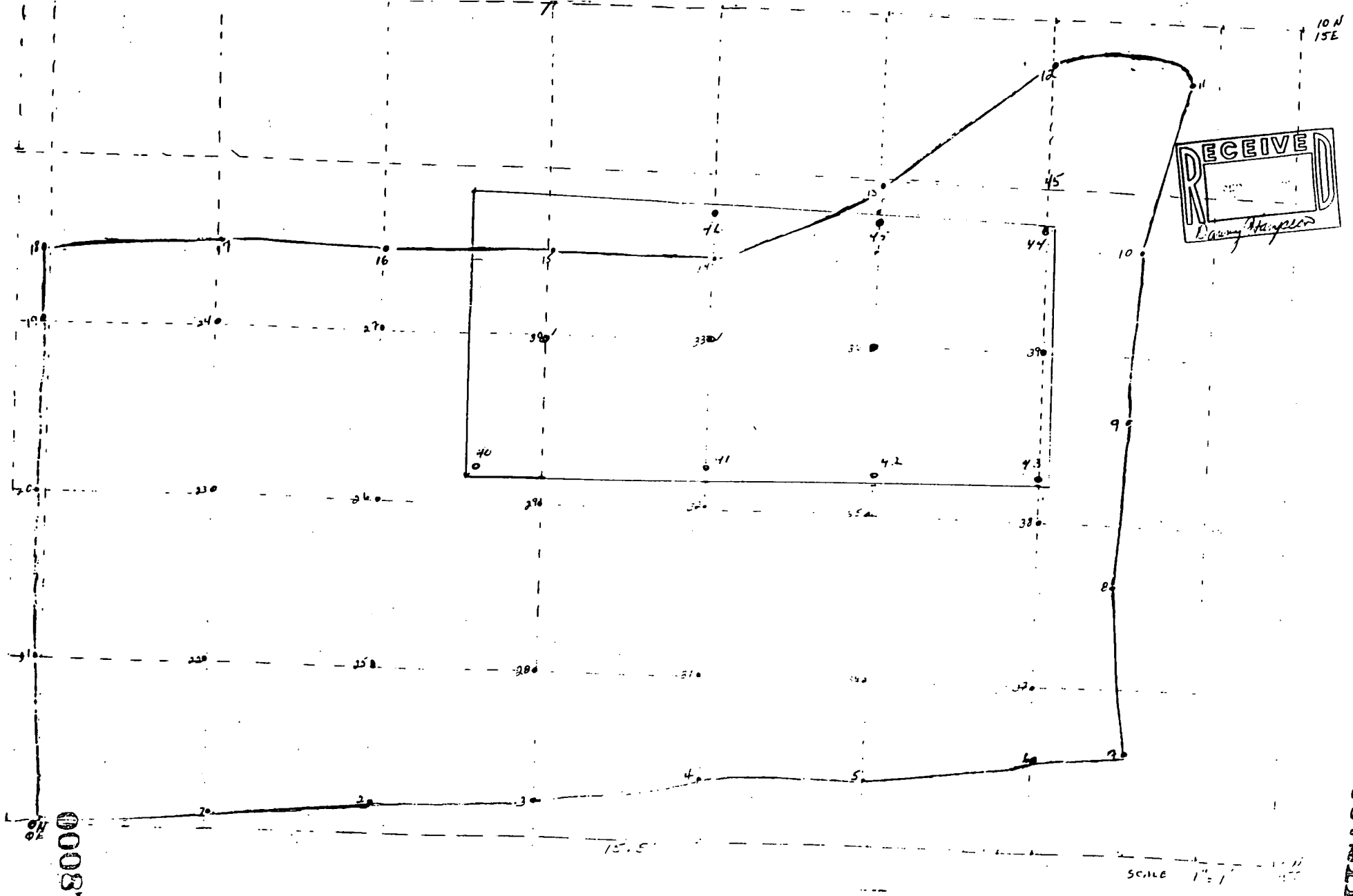
# Item 1 - Site Media Sampling Scabbling Elevation Survey Report




0008869

0072211


058000
X = .010
.01
.015
.005
data the first cut with X
RECEIVED
FIRST REVISAL




000821

000821

# Final Measurement & Difference

PROJECT NAME: DETREX STILL

DATE: START 8-22-84 FINIAL 8-22-84

CHARGE NUMBER: 3B5U3

RECEIVED
SEP 84
Danny Hampton

POINT 30 (-.04) START
(-.085) FINIAL
-.045 DIFF = .54"

POINT 33 (-.065) START
(-.11 FINIAL
-.045 DIFF = .54"

POINT 36 (-.09) START
(-.125) FINIAL
-.035 DIFF = .42"

POINT 39 (-.12) START
(-.16) FINIAL
-.04 DIFF = .48"

POINT 40 (-.04) START ≈ POINT 26 - POINT 29
(-.09) FINIAL
.05 DIFF = .6"

POINT 41 (-.08) START POINT 32
(-.125) FINIAL
.045 DIFF .54"

000872

RECEIVED
SEP 1 1 991
Danny Hampson

POINT 42 ( -.105 ) START POINT 35
( -.16 ) FINIAL
.055 = .66"

POINT 44 ( -.09 ) START POINT 45
( .155 ) FINIAL
.065 = .78"

POINT 45 ( -.065 ) START POINT 13
( -.11 ) FINIAL
.045 = .54"

POINT 46 ( -.05 ) START POINT 14
( .085 )
.035 = .42"

# Item 2 - Summary of Elevations ... First Scabbling Effort

# Detrex Scabbling Depth Summary – First Effort

| | points 0, 21, 20, &19 | points 1, 22 23, &24 | points 2, 25 26, &27 | points 3, 28 29, &30 | points 4, 31 32, & 33 | points 5, 34 35, & 13 | points 6, 37 38, 39, &12 | points 7, 10 & 11 | All points |
|---|---|---|---|---|---|---|---|---|---|
| (feet) | 0.01 | 0.015 | 0.015 | 0.015 | 0.015 | 0.01 | 0.01 | 0.015 | |
| | 0.005 | 0.015 | 0.01 | 0.015 | 0.005 | 0.005 | 0.01 | 0.005 | |
| | 0.01 | 0.005 | 0.01 | 0.015 | 0.015 | 0.025 | 0.005 | 0.015 | |
| | 0.005 | 0.01 | 0.005 | 0.01 | 0.01 | 0.01 | 0.02 | | |
| | | | | | | | 0.015 | | |
| ave feet | 0.0075 | 0.01125 | 0.01 | 0.01375 | 0.01125 | 0.0125 | 0.012 | 0.0116666 | 0.01123958 |
| ave inches | 0.09 | 0.135 | 0.12 | 0.165 | 0.135 | 0.15 | 0.144 | 0.14 | 0.134875 |
| **ave cm** | **0.2286** | **0.3429** | **0.3048** | **0.4191** | **0.3429** | **0.381** | **0.36576** | **0.3556** | **0.3425825** |

ENSERCH ENVIRONMENTAL
DETREX STILL - HAZARDOUS WASTE MANAGEMENT UNIT No. 26
CERTIFICATION REPORT

# Item 3 - Summary of Elevations ... Second Scabbling Effort

# Detrex Scabbling Depth Summary – Second Effort

**Depths For Final Scabbling Elevation Survey (HWMU area as defined).**

| | points 40, & 30 | points 41, 33, & 46 | points 42, 36, &45 | points 39 & 44 | all points |
|---|---|---|---|---|---|
| | 0.05 | 0.045 | 0.055 | 0.04 | |
| | 0.045 | 0.045 | 0.035 | 0.065 | |
| | | 0.035 | 0.045 | | |
| ave feet | 0.0475 | 0.0416666 | 0.045 | 0.0525 | 0.0466666 |
| ave inches | 0.57 | 0.5 | 0.54 | 0.63 | 0.56 |
| ave cm | **1.4478** | **1.27** | **1.3716** | **1.6002** | **1.4224** |

# ATTACHMENT F

## RCRA DETERMINATION AND MATERIAL EVALUATION FORMS FOR GENERATED WASTES

Item 1 - Interoffice Memo - RCRA Characterization

Item 2 - Scrap Metal for Disposal - MEF No. 2618

Item 3 - Scrap Metal for Recycle - MEF No. 2241

Item 4 - Debris Containing Hazardous Waste - MEF No. 2613

Item 5 - Waste Waters-Identification and Disposal - MEF No. 2611

Item 6 - Other Residues (Still Residues) - MEF No. 2085

Item 7 - Other Residues (Hazardous Contact Waste) - MEF No. 2612

Item 8 - Other Residues (Non-Hazardous Contact Waste) - MEF No. 1722

Item 9 - Miscellaneous Solids from Detrex Still - MEF No. 2668

Item 10 - Regulated Asbestos Material - MEF No. 1340

ENSERCH ENVIRONMENTAL
DETREX STILL - HAZARDOUS WASTE MANAGEMENT UNIT No. 26
CERTIFICATION REPORT

# Item 1 - Interoffice Memo - RCRA Characterization

007211

ENV. ENG. SDS DEPT

AUG 2 8 21 AM '94

Fernald Environmental

FERMCO

Restoration Management Corporation

# INTEROFFICE MEMORANDUM

| | | | |
|---|---|---|---|
| To: | Michael Heinen | Date: | July 22, 1994 |
| Location: | Fernald, MS 76 | Reference: | |
| From: | Linda Barlow LB | FERMCO #: | RSO:(WM):94-0613 |
| Location: | Fernald, MS 46 | Client: | DOE DE-AC05-92OR21972 |
| Extension: | 738-6222 | Subject: | RCRA Determination for the Detrex Still HWMU |

c: File Record Storage Copy 106.4.10.6
Matthew Frost MS 16-2
Marian Curry, MS 55
Jerry Erfman, MS 46
Glenna Gerster MS 73
Scott Hakel MS 46
Darryl Howe MS 30
Lori Hurst MS 63
Harold Knue MS 28
LaVerne March MS 73
Kelly McGue, MS 66
Glenn Rieman MS 46
Bonnie Spencer MS 73
Rene Thiel MS 66
Dave Vigus MS 10
Carolyn Waugh MS 46
RCRA Operating Record MS 30

This determination has been prepared to support the Closure of the Detrex Still HWMU in Building 1A on the Plant 1 Pad. This determination specifically addresses the waste materials listed on the Project Waste Identification Disposition (PWID) form dated June 14, 1994.

SCRAP METAL FOR RECYCLE, PWID, Section C, Item 2

This material (solvent condenser and structural supports) meets the conditions specified in MEF # 2241 and is RCRA Non-Hazardous (a.k.a. Non-RCRA).

010013
SD-EES-C26-WT-10041
7-22-94

000680

Fernald Environmental

FERMCO

Restoration Management Corporation

# INTEROFFICE MEMORANDUM



**SCRAP METAL FOR DISPOSAL (ONSITE MANAGEMENT), PWID, Section C, Item 3**

This material (still tank including view plate glass and associated inlet piping and pump) is RCRA Hazardous (F001, F002) per the process knowledge described in the Closure Plan. The Still Tank is also wrapped with asbestos insulation on the outside. The Still Tank will be managed as Mixed/TSCA waste per the Closure Plan. The associated pump and inlet piping to the Still Tank will also be RCRA Hazardous and handled as Mixed waste as per the Closure Plan. This material meets the conditions specified in MEF # 2618.

**REGULATED ASBESTOS CONTAINING MATERIAL, PWID, Section C, Item 12**

This material (pipe wrapping) meets the conditions specified in MEF # 1340 and is RCRA non-hazardous (a.k.a. non-RCRA).

**ELECTRICAL EQUIPMENT, PWID, Section C, Item 14**

This material (motor and wiring) meets the conditions specified in MEF # 2008 and is RCRA non-hazardous (a.k.a. non-RCRA).

**DEBRIS CONTAINING HAZARDOUS WASTE, PWID, Section C, Item 15**

This material (scabbled concrete) meets the conditions specified in MEF # 2613 and is RCRA Hazardous (F001, F002,).

**OTHER RESIDUES, PWID, Section D, Item 4**

This material (still residue) meets the conditions specified in MEF # 2085 and is RCRA Hazardous (F001, F002).

**OTHER RESIDUES, PWID, Section D, Item 5**

This material (contact waste, PPE, plastic, paper, etc.) meets the conditions specified in MEF# 2612 and is RCRA Hazardous (F001, F002).

**OTHER RESIDUES, PWID, Section D. Item 6**

This material (plastic, paper, non-contact PPE, etc.) meets the conditions specified in MEF # 1722 and is RCRA Non-Hazardous (a.k.a Non-RCRA).

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Restoration Management Corporation

# INTEROFFICE MEMORANDUM



**WASTE WATERS-IDENTIFICATION AND DISPOSAL - (IDW), PWID, Section E, Item 4**

This material (decontamination water) meets the conditions specified in MEF # 2611 and is RCRA Hazardous (F001, F002).

**INSTRUCTIONS FOR GENERATORS**

Attached are the verification forms and container inventory attachments to be completed at the time of generation for each waste stream identified above. The completed forms must be submitted to Waste Characterization Section (WCS) for final signature. After obtaining final signature, a copy of the completed forms must accompany the containers during transportation from the staging area to the holding area for
final disposition.

**RCRA DETERMINATION**

With the exception of the F-listed wastes (Still Tank, piping, pump, decon water and PPE) no other materials have been identified that would cause the waste to meet any of the hazardous waste listings under OAC 3745-51-31 to 33, (in lieu of 40 CFR 261, Subpart D) or exhibit any of the hazardous waste characteristics under OAC 3745-51-21 to 24, (in lieu of 40 CFR 261.21 to 24).

**SUMMARY**

It is WCS's intention to provide complete waste characterization of construction waste prior to its generation. WCS believes that these determinations properly represent the waste or waste streams discussed herein.

WCS believes the volume of RCRA hazardous/mixed waste may be reduced if the Still Tank, piping and pump are amenable to treatment, and therefore, treated and shown to satisfy the "clean debris" criteria via documented visual inspection per 40 CFR 268.45.

WCS recommends that the Still Tank, piping and pump be flushed and visually inspected to reduce the volume of F-listed solid wastes for which there is currently no disposal option. The visual inspection to verify the tank is clean may require the tank be cut open which may also facilitate the cleaning process. The piping and pump should also be flushed and visually inspected. Flushing with a surfactant solution and rinsing three times with water may be a decontamination option. If this option is successfully implemented, MEF 2618 will not be needed.

Fernald Environmental

FERMCO

Restoration Management Corporation

# INTEROFFICE MEMORANDUM



The flush water would be covered under MEF# 2611. The decontaminated Still Tank piping and pump would be covered as under MEF # 2241 as RCRA Non-Hazardous metal for recycle.

The waste will have to be monitored by the Radiological Safety Group for proper radiologically disposition.

If there are any questions, please call me at extension 6222 or Jerry Erfman at extension 6085.

LLB:tmk
Attachment

fill in items 3 + 7 + 5
on each verification form
See instructions on the back of the form

007211

3 drums, from the decomm of the condenser and frame

INV. NO.:

## CARD 65-1 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

| P. O. NO. | SOURCE | CLASS | MATERIAL TYPE | LOT SEQUENCE NO. | DATE MO | DATE DAY | DATE YEAR | SHIFT | BADGE NO. | CONT. NO. | SERIAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W124 | 120 | V | 012 | 0393 | 9 | 28 | 94 | 1 | 2969 | 3 | |

| SEAL NUMBER | SEAL DATE MONTH | DAY | YEAR |
|---|---|---|---|
| | | | |

| PACKAGE PHYSICAL CERTIFICATION | YES | NO |
|---|---|---|
| EMPTY CONTAINER AT START | ✓ | |
| RUST HOLES OR DENTS | | ✓ |
| MATERIAL IS AS CODED | ✓ | |
| PROHIBITED MATERIALS | | ✓ |
| LIQUIDS IN CONTAINER | | ✓ |
| MINIMUM OF VOID SPACE | ✓ | |
| PACKAGE SECURED | ✓ | |
| DRAIN PLUG SECURED | N/A | |
| OVERPACK | | |
| REPACK | | |

PLANT: [redacted]

PROD. MBA: [redacted]

DCAR: [redacted]

SURV. NO.: [redacted]

MEF NO.: 2611

GROSS WEIGHT: 155

TARE WEIGHT: 50

NET WEIGHT: 105

WASTE DESCRIPTION AND COMMENTS: RINSE WATER (DETRIX STILL)

PACKAGE TYPE: DRUM

PACKAGE SIZE: 55 GAL.

PROJECT: DETRIX STILL

WORK REQ. #92628

[redacted] GENERATOR SIGNATURE

[redacted] SUPERVISOR SIGNATURE

DATE: 9/28/94

FS-F-1945-1 (REV. 11/20/92)

U.S. GPO:1992-751-382

INV. NO.:

## CARD 65-1 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

| P. O. NO. | SOURCE | CLASS | MATERIAL TYPE | LOT SEQUENCE NO. | DATE MO | DATE DAY | DATE YEAR | SHIFT | BADGE NO. | CONT. NO. | SERIAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W124 | 120 | V | 012 | 0393 | 9 | 28 | 94 | 1 | 2969 | 2 | |

| SEAL NUMBER | SEAL DATE MONTH | DAY | YEAR |
|---|---|---|---|
| | | | |

| PACKAGE PHYSICAL CERTIFICATION | YES | NO |
|---|---|---|
| EMPTY CONTAINER AT START | ✓ | |
| RUST HOLES OR DENTS | | ✓ |
| MATERIAL IS AS CODED | ✓ | |
| PROHIBITED MATERIALS | | ✓ |
| LIQUIDS IN CONTAINER | | ✓ |
| MINIMUM OF VOID SPACE | ✓ | |
| PACKAGE SECURED | ✓ | |
| DRAIN PLUG SECURED | N/A | |
| OVERPACK | | |
| REPACK | | |

PLANT: [redacted]

PROD. MBA: [redacted]

DCAR: [redacted]

SURV. NO.: [redacted]

MEF NO.: 2611

GROSS WEIGHT: 536

TARE WEIGHT: 50

NET WEIGHT: 486

WASTE DESCRIPTION AND COMMENTS: RINSE WATER (DETRIX STILL)

PACKAGE TYPE: DRUM

PACKAGE SIZE: 55 GAL

PROJECT: DETRIX STILL

WORK REQ. #92628

[redacted]

[redacted] SUPERVISOR SIGNATURE

DATE: 9/28/94

FS-F-1945-1 (REV. 11/20/92)

U.S. GPO 1992-751-382

INV. NO.:

## CARD 65-1 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

| P. O. NO. | SOURCE | CLASS | MATERIAL TYPE | LOT SEQUENCE NO. | DATE MO | DATE DAY | DATE YEAR | SHIFT | BADGE NO. | CONT. NO. | SERIAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W124 | 120 | V | 012 | 0393 | 9 | 28 | 94 | 1 | 2969 | 1 | |

| SEAL NUMBER | SEAL DATE MONTH | DAY | YEAR |
|---|---|---|---|
| | | | |

| PACKAGE PHYSICAL CERTIFICATION | YES | NO |
|---|---|---|
| EMPTY CONTAINER AT START | ✓ | |
| RUST HOLES OR DENTS | | ✓ |
| MATERIAL IS AS CODED | ✓ | |
| PROHIBITED MATERIALS | | ✓ |
| LIQUIDS IN CONTAINER | | ✓ |
| MINIMUM OF VOID SPACE | ✓ | |
| PACKAGE SECURED | ✓ | |
| DRAIN PLUG SECURED | N/A | |
| OVERPACK | | |
| REPACK | | |

PLANT: [redacted]

PROD. MBA: [redacted]

DCAR: [redacted]

SURV. NO.: [redacted]

MEF NO.: 2611

GROSS WEIGHT: 482

TARE WEIGHT: 50

NET WEIGHT: 432

WASTE DESCRIPTION AND COMMENTS: RINSE WATER (DETRIX STILL)

PACKAGE TYPE: DRUM

PACKAGE SIZE: 55 GAL

PROJECT: DETRIX STILL

WORK REQ. #92628

[redacted]

[redacted] DATE

DATE: 9/28/94

U.S. GPO 1992-751-382

000884

concrete

CARD 65-1 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

| P. O. NO. | SOURCE | CLASS | MATERIAL TYPE | LOT SEQUENCE NO. | DATE MO | DATE DAY | DATE YEAR | SHIFT | BADGE NO. | CONT. NO. | SERIAL NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W124 | 120 | V | 011 | 0393 | 9 | 28 | 94 | 1st | | 1 | |

| SEAL NUMBER | SEAL DATE MONTH | DAY | YEAR |
|---|---|---|---|
| | | | |

| PACKAGE PHYSICAL CERTIFICATION | YES | NO |
|---|---|---|
| EMPTY CONTAINER AT START | ✓ | |
| RUST HOLES OR DENTS | | ✓ |
| MATERIAL IS AS CODED | ✓ | |
| PROHIBITED MATERIALS | | ✓ |
| LIQUIDS IN CONTAINER | | ✓ |
| MINIMUM OF VOID SPACE | ✓ | |
| PACKAGE SECURED | ✓ | |
| DRAIN PLUG SECURED | | |
| OVERPACK | N/A | |
| REPACK | | |

WASTE DESCRIPTION AND COMMENTS

| | |
|---|---|
| PACKAGE TYPE | Drum |
| PACKAGE SIZE | 55 gal |
| PROJECT | Detrix Still |

PLANT | PROD. MBA | DCAR | SURV. NO.

REF NO. 2613

GROSS WEIGHT 432

TARE WEIGHT 50

NET WEIGHT 382

GENERATOR SIGNATURE

SUPERVISOR SIGNATURE 9/28/94 DATE

FS-F-1945-1 (REV. 11/20/92)

LLW storm pipes etc

CARD 65-1 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

INV. NO.:

| P. O. NO. | SOURCE | CLASS | MATERIAL TYPE | LOT SEQUENCE NO. | DATE MO | DATE DAY | DATE YEAR | SHIFT | BADGE NO. | CONT. NO. | SERIAL NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W124 | 120 | V | 003 | 4393 | 9 | 28 | 94 | 1st | | 1 | |

| SEAL NUMBER | SEAL DATE MONTH | DAY | YEAR |
|---|---|---|---|
| | | | |

| PACKAGE PHYSICAL CERTIFICATION | YES | NO |
|---|---|---|
| EMPTY CONTAINER AT START | ✓ | |
| RUST HOLES OR DENTS | | ✓ |
| MATERIAL IS AS CODED | ✓ | |
| PROHIBITED MATERIALS | | ✓ |
| LIQUIDS IN CONTAINER | | ✓ |
| MINIMUM OF VOID SPACE | ✓ | |
| PACKAGE SECURED | ✓ | |
| DRAIN PLUG SECURED | | |
| OVERPACK | N/A | |
| REPACK | | |

WASTE DESCRIPTION AND COMMENTS

| | |
|---|---|
| PACKAGE TYPE | Drum |
| PACKAGE SIZE | 55 gal |
| PROJECT | Detrix Still |

PLANT | PROD. MBA | DCAR | SURV. NO.

REF NO. 2241

GROSS WEIGHT 248

TARE WEIGHT 50

NET WEIGHT 198

GENERATOR SIGNATURE

SUPERVISOR SIGNATURE 9/28/94 DATE

FS-F-1945-1 (REV. 11/20/92)

U S GPO:1992-751-382

U S GPO:1992-751-382

TANK

CARD 65-1 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

INV. NO.:

| P. O. NO. | SOURCE | CLASS | MATERIAL TYPE | LOT SEQUENCE NO. | DATE MO | DATE DAY | DATE YEAR | SHIFT | BADGE NO. | CONT. NO. |
|---|---|---|---|---|---|---|---|---|---|---|
| R124 | 120 | V | 003 | 4393 | 9 | 28 | 94 | 1st | | |

| SEAL NUMBER | SEAL DATE MONTH | DAY | YEAR |
|---|---|---|---|
| | | | |

WASTE DESCRIPTION AND COMMENTS

| | |
|---|---|
| PACKAGE TYPE | white metal Box |
| PACKAGE SIZE | |
| PROJECT | Detrix Still |

| PACKAGE PHYSICAL CERTIFICATION | YES | NO |
|---|---|---|
| EMPTY CONTAINER AT START | ✓ | |
| RUST HOLES OR DENTS | | ✓ |
| MATERIAL IS AS CODED | ✓ | |
| PROHIBITED MATERIALS | | ✓ |
| LIQUIDS IN CONTAINER | | ✓ |
| MINIMUM OF VOID SPACE | ✓ | |
| PACKAGE SECURED | ✓ | |
| DRAIN PLUG SECURED | ✓ | |
| OVERPACK | ✓ | |
| REPACK | ✓ | |

| PLANT | PROD. MBA | REF IN |
|---|---|---|
| | | 261 |
| DCAR | SURV. NO. | GROSS WE |
| | | 198 |
| | | TARE WE |
| | | 10 |
| | | NET WEI |
| | | 95 |

GENERATOR SIGNATURE

SUPERVISOR SIGNATURE 9-28-94 DATE

FS-F-1945-1 (REV. 11/20/92)

U S GPO.1992-751 382

mixed

## CARD 65-1 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

INV. NO.:

| P. O. NO. | SOURCE | CLASS | MATERIAL TYPE | LOT SEQUENCE NO. | DATE MO | DAY | YEAR | SHIFT | BADGE NO. | CONT. NO. | SERIAL NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R124 | 120 | V | 003 | 9393 | 9 | 28 | 94 | 1ST | | 1 | |

| SEAL NUMBER | SEAL DATE MONTH | DAY | YEAR |
|---|---|---|---|
| | | | |

WASTE DESCRIPTION AND COMMENTS

| PACKAGE PHYSICAL CERTIFICATION | YES | NO |
|---|---|---|
| EMPTY CONTAINER AT START | ✓ | |
| RUST HOLES OR DENTS | | ✓ |
| MATERIAL IS AS CODED | ✓ | |
| PROHIBITED MATERIALS | | ✓ |
| LIQUIDS IN CONTAINER | | ✓ |
| MINIMUM OF VOID SPACE | ✓ | |
| PACKAGE SECURED | ✓ | |
| DRAIN PLUG SECURED | | |
| OVERPACK | N/A | |
| REPACK | | |

| PLANT | PROD. MBA | MEF NO. |
|---|---|---|
| | | 2618 |
| DCAR | SURV. NO. | GROSS WEIGHT |
| | | 86 |
| | | TARE WEIGHT |
| | | 50 |
| | | NET WEIGHT |
| | | 36 |

| | |
|---|---|
| PACKAGE TYPE | Drum |
| PACKAGE SIZE | 55 gal |
| PROJECT | Detrix Still |

H. Felts 9-28-94
SUPERVISOR SIGNATURE DATE

GENERATOR SIGNATURE

FS-F-1945-1 (REV. 11/20/92)

U.S. GPO:1992-751-382

mixed

## CARD 65-1 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

INV. NO.:

| P. O. NO. | SOURCE | CLASS | MATERIAL TYPE | LOT SEQUENCE NO. | DATE MO | DAY | YEAR | SHIFT | BADGE NO. | CONT. NO. | SERIAL NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R124 | 120 | V | 003 | 9393 | 9 | 28 | 94 | 1ST | | 2 | |

| SEAL NUMBER | SEAL DATE MONTH | DAY | YEAR |
|---|---|---|---|
| | | | |

WASTE DESCRIPTION AND COMMENTS

| PACKAGE PHYSICAL CERTIFICATION | YES | NO |
|---|---|---|
| EMPTY CONTAINER AT START | ✓ | |
| RUST HOLES OR DENTS | | ✓ |
| MATERIAL IS AS CODED | ✓ | |
| PROHIBITED MATERIALS | | ✓ |
| LIQUIDS IN CONTAINER | | ✓ |
| MINIMUM OF VOID SPACE | ✓ | |
| PACKAGE SECURED | ✓ | |
| DRAIN PLUG SECURED | | |
| OVERPACK | N/A | |
| REPACK | | |

| PLANT | PROD. MBA | MEF NO. |
|---|---|---|
| | | 2618 |
| DCAR | SURV. NO. | GROSS WEIGHT |
| | | 73 |
| | | TARE WEIGHT |
| | | 50 |
| | | NET WEIGHT |
| | | 23 |

| | |
|---|---|
| PACKAGE TYPE | Drum |
| PACKAGE SIZE | 55 gal |
| PROJECT | Detrix Still |

H. Felts 9-28-94
SUPERVISOR SIGNATURE DATE

GENERATOR SIGNATURE

FS-F-1945-1 (REV. 11/20/92)

U.S. GPO:1992-751-382

mixed

## CARD 65-1 ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION

INV. NO.:

| P. O. NO. | SOURCE | CLASS | MATERIAL TYPE | LOT SEQUENCE NO. | DATE MO | DAY | YEAR | SHIFT | BADGE NO. | CONT. NO. | SERIAL NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R124 | 120 | V | 003 | 9393 | 9 | 28 | 94 | 1ST | | 3 | |

| SEAL NUMBER | SEAL DATE MONTH | DAY | YEAR |
|---|---|---|---|
| | | | |

WASTE DESCRIPTION AND COMMENTS

| PACKAGE PHYSICAL CERTIFICATION | YES | NO |
|---|---|---|
| EMPTY CONTAINER AT START | ✓ | |
| RUST HOLES OR DENTS | | ✓ |
| MATERIAL IS AS CODED | ✓ | |
| PROHIBITED MATERIALS | | ✓ |
| LIQUIDS IN CONTAINER | | ✓ |
| MINIMUM OF VOID SPACE | ✓ | |
| PACKAGE SECURED | ✓ | |
| DRAIN PLUG SECURED | | |
| OVERPACK | N/A | |
| REPACK | | |

| PLANT | PROD. MBA | MEF NO. |
|---|---|---|
| | | |
| DCAR | SURV. NO. | GROSS WEIGHT |
| | | 207 |
| | | TARE WEIGHT |
| | | 50 |
| | | NET WEIGHT |
| | | 157 |

| | |
|---|---|
| PACKAGE TYPE | Drum |
| PACKAGE SIZE | 55 gal |
| PROJECT | Detrix Still |

H. Felts 9-28-94
SUPERVISOR SIGNATURE DATE

GENERATOR SIGNATURE

FS-F-1945-1 (REV. 11/20/92)

U.S. GPO 1992-751-382

000887

# Item 2 - Scrap Metal for Disposal - MEF No. 2618

Fernald Environmental Management Project
MATERIAL EVALUATION FORM (M

007211

**Requestor Section**



**A. REQUESTOR/WASTE STREAM IDENTIFICATION**

| 1. MEF#: | 2. Date Submitted: | 3. Material Type and Source Code: |
|---|---|---|
| 2618 Original: ✓ Revision: | 7/19/94 | 003 - 122 Still Tank and associated piping (inlet) |
| **4. Requestor Name:** | **5. Phone No.:** | **6. Badge No./Co. Name:** |
| [redacted] | x6634 | 8986 KERMCO |

**B. GENERATION INFORMATION**

| 1. Provide best descriptive name for material: | 2. Does this material originate in a HWMU or SWMU? | 3. Project, Activity, or Work Area generating waste (include CRU # if applicable). |
|---|---|---|
| Detrex still Tank, associated inlet piping, pump and asbestos jacket cover. | Unit Name/No. HWMU # 26 Detrex Still | Plant 1 building 1A CRU3. |

| 4. Date of first or expected generation: | 5. Generation Quantity: | 6. Generation frequency: | 7. Similar waste stream MEF# (or MTC/SRC): |
|---|---|---|---|
| ☒ estimate; ☐ actual Sept. '94 | 41.5 $ft^3$ | in 1 day | 3085 |

8. Provide a detailed description of what the material is:

The material consists of the Detrex Still tank, inlet piping, pump and asbestos jacket cover. The Still tank and jacket cover will remain intact and managed as a Mixed / TSCA waste per the Closure Plan. The associated pump and inlet piping to Still will be managed as a Mixed waste.

9. Provide a detailed description of how and where (specific origin) the waste stream is/will be generated, including any units which manage the material:

This material will originate from the Detrex Still Closure.

[Note: Generator must attach all supporting documentation concerning items 8 and 9.] ○ additional narrative; ○ SOP;

○ MSDS; ○ AEDO Log excerpt; ○ release report; ○ manufacturing specs; ○ Other: _____

000889

Fernald Environmental Management Project
MATERIAL EVALUATION FORM (MF

007211

*Requestor Section*



## C. PHYSICAL CHARACTERISTICS

1. Describe Color/Appearance:
metal tank, piping, pump + asbestos jacket cover

2. Phase:
- ☐ Liquid
- ☒ Solid debris/rubble
- ☐ Semi-solid/sludge
- ☐ Dry solid residue
- ☐ dry powder/dusty residue
- ☐ Other, specify:

3. Contains Free Liquids: NO
- ☐ yes
- ☒ no
- ☒ unknown

based on:
- ○ PFLT (results attached)
- ○ Visuals (results attached)
- ☒ Knowledge of waste

[NOTE: DO NOT SMELL THE MATERIAL]
4. Note Any Incidental Odor:
NA

5. Layers:
- ☒ single layer
- ☐ bi-layered
- ☐ multi-layered

6. pH: specify range or "unknown"
~~unknown~~ NA
☐ estimate: ○ documentation attached

7. Flash Point: Specify range or "unknown"
~~unknown~~ NA
☐ estimate: ○ documentation attached

## D. MATERIAL COMPOSITION

1. Composition:

| | Min | Max: | circle |
|---|---|---|---|
| tank, piping, pump | | 100 | (%) (or) ppm |
| + asbestos cover | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |

Total Maximum: 100 %
maximum must equal or exceed 100 %

Basis:
- ☒ knowledge of the material
- ○ analytical data attached

2. Does the material contain any of the following?
- ☒ asbestos
- ☐ polychlorinated biphenyls (PCBs)
- ☐ infectious waste
- ☐ reactives (circle applicable items):
  - water reactive
  - explosive
  - cyanide/sulfide
  - shock sensitive
  - normally unstable
  - *exclude materials which normally produce hydrogen gas.*
- ☐ toxicity characteristic metals (circle applicable items):
  - arsenic, barium
  - cadmium, chromium
  - lead, mercury
  - nickel, selenium
  - silver, thallium

(or)
- ☐ None of the above

(or)
- ☐ Unknown

Basis:
- ☐ knowledge of the material
- ☒ analytical data (attached)

3. Radionuclide Contamination:
- ☐ material is not contaminated with radionuclides
- ☒ material contains incidental radionuclide contamination
- ☐ radionuclide bearing material/residue

Radionuclides of Concern if any:
- ☒ uranium
- ☐ thorium
- ☐ transuranics (TRU)

Basis:
- ☒ knowledge of the material
- ○ analytical data attached
- ☐ RMMA generated
- ☐ Other: _____

4. Identify the container or repository type(s) in which the waste is (or is expected to be) managed on-site:
- ☐ drum
- ☒ box
- ☐ Sea/Land
- ☐ soil/debris pile
- ☐ small container (5 gal. or less)
- ☐ landfill, pit, or other land-based unit
- ☐ discharge to WWTS

Fernald Environmental Management Project
MATERIAL EVALUATION FORM (M

007211

*Evaluation Section*

**A. WASTE STREAM IDENTIFICATION**

| 1. MEF # | Revision No.: | 2. Date Completed: | 3. Material Type / Source Code of original material: |
|---|---|---|---|
| 2618 | 0 | 7/20/94 | Mat. 003 Src 122 |
| 4. Evaluator: [redacted] | | 5. Phone No.: 6222 | 6. Badge No./Co. Name: 8850 / FERMCO |

**B. MATERIAL REGULATORY STATUS** (check all that apply)

| Regulated: | Material Specific Regulation: | Regulated: | Material Specific Regulation: |
|---|---|---|---|
| __ yes ✓ no | TSCA PCB Waste | __ yes ✓ no | High Level Radioactive Waste |
| ✓ yes __ no | Asbestos Containing-Waste Materials | __ yes ✓ no | Transuranic (TRU) Waste |
| __ yes ✓ no | OAC Infectious waste | __ yes ✓ no | AEA 11(e)(2) Byproduct Material |
| ✓ yes __ no | OAC Solid Waste (RCRA Subtitle D) | __ yes ✓ no | Source (or) Special Nuclear Material |
| ✓ yes __ no | RCRA Solid Waste (RCRA Subtitle C) | ✓ yes __ no | Low Level Radioactive Waste (LLRW). |
| ✓ yes __ no | RCRA Hazardous Waste | __ yes ✓ no | Non-Radioactive waste. *** |

Hazardous Waste Code(s): F001, F002

*** Concurrence. Radiological Assessment- Date: _____

Re-evaluation Date: N/A (one time)

Note: Waste stream must be re-evaluated by WCS if it is generated after the re-evaluation date listed above or when the stream/generating process changes.

**C. MATERIAL MANAGEMENT**

| 1. Waste Form Criteria: | 2. Container Specification: | 3. Reactivity Group Code(s): |
|---|---|---|
| __ yes ✓ no Material contains free liquids. | Carbon Steel | A |
| __ yes ✓ no Material is a wastewater. (40 CFR 268.2(f)). | | |
| ✓ yes __ no Material meets the physical definition of debris (40 CFR 268.2(g)). | | |
| __ yes ✓ no Waste meets NVO-325 Waste Acceptance Criteria (See NTS Waste Accepatance Criteria in MEF file). | | |

**D. WASTE CHARACTERIZATION APPROVAL**

Nam[redacted]

Signature: [redacted]

**E. DISTRIBUTION**

| | | | |
|---|---|---|---|
| X Generator | M. Heiner | ✓ HW/MW Handling and Disposition | Dr. D. Day |
| __ MC&A | H. Kove | __ LLW Handling and Disposal | |
| X Waste Treatment and Storage | ~~H. Kove~~ M. Harper | ✓ Waste Characterization Files | |
| ✓ Sample Disposition (if sampled) | ~~M. Harper~~ | __ Other | |

000891

# Item 3 - Scrap Metal for Recycle - MEF No. 2241

Fernald Environmental Management Project
MATERIAL EVALUATION FORM (

007211

*Requestor Section*



REQUESTOR/WASTE STREAM IDENTIFICATION

| MEF#: 2241 Original: ____ Revision: 1 | 2. Date Submitted: 8/26/94 | 3. Material Type and Source Code: 0043 ID 701 |
|---|---|---|
| Requestor Name: [redacted] | 5. Phone No.: 6222 | 6. Badge No. Co. Name: 8250 / FERMCO |

GENERATION INFORMATION

| Provide best descriptive name for material: | 2. Does this material originate in a HWMU or SWMU? Unit Name/No. NA | | 3. Project, Activity, or Work Area generating waste (include CRU # if applicable). |
|---|---|---|---|
| Scrap metal for unrestricted recycling | | | Sitewide construction, remedial/removal action projects |
| Date of first or expected generation: not known estimate: ☐ actual ____ | 5. Generation Quantity: not known | 6. Generation frequency: not known | 7. Similar waste stream MEF# (or MTC/SRC): NA |

Provide a detailed description of what the material is:

Structural steel and decking material from Site wide construction or remedial/removal action projects

Provide a detailed description of how and where (specific origin) the waste stream is/will be generated, including any units which manage the material:

Sitewide via construction + remedial/removal action projects

[: Generator must attach all supporting documentation concerning items 8 and 9.] ☐ additional narrative; ○ SOP;

SDS; ○ AEDO Log excerpt; ○ release report; ☐ manufacturing specs; ☑ Other: guidance document

Fernald Environmental Management Project
MATERIAL EVALUATION FORM (MEF)

007211

*Requestor Section*



## C. PHYSICAL CHARACTERISTICS

1. Describe Color/Appearance: steel

2. Phase:
- ☐ Liquid
- ☑ Solid debris/rubble
- ☐ Semi-solid/sludge
- ☐ Dry solid residue
- ☐ dry powder/dusty residue
- ☐ Other, specify:

3. Contains Free Liquids:
- ☐ yes
- ☑ no
- ☐ unknown

based on:
- ○ PFLT (results attached)
- ○ Visuals (results attached)
- ☑ Knowledge of waste

[NOTE: DO NOT SMELL THE MATERIAL]
4. Note Any Incidental Odor: none

5. Layers:
- ☑ single layer
- ☐ bi-layered
- ☐ multi-layered

6. pH: specify range or "unknown" NA
- ☐ estimate: ○ documentation attached

7. Flash Point: Specify range or "unknown" NA
- ☐ estimate: ○ documentation attached

## D. MATERIAL COMPOSITION

1. Composition:

| | Min | Max: | circle |
|---|---|---|---|
| steel | 100 | 100 | (%) (or) ppm |
| lead-based paint | 0 | 1 | (%) (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |

Total Maximum: 101 %

maximum must equal or exceed 100 %

Basis:
- ☑ knowledge of the material
- ○ analytical data attached

2. Does the material contain any of the following?
- ☐ asbestos
- ☐ polychlorinated biphenyls (PCBs)
- ☐ infectious waste
- ☐ reactives (circle applicable items):
  - water reactive, explosive
  - cyanide/sulfide, shock sensitive
  - normally unstable
  - *exclude materials which normally produce hydrogen gas.*
- ☑ toxicity characteristic metals (circle applicable items):
  - arsenic, barium
  - cadmium, chromium
  - lead, mercury
  - nickel, selenium
  - silver, thallium

{or}
- ☐ None of the above

{or}
- ☐ Unknown

Basis:
- ☑ knowledge of the material
- ○ analytical data (attached)

3. Radionuclide Contamination:
- ☐ material is **not contaminated** with radionuclides
- ☑ material contains incidental radionuclide contamination
- ☐ radionuclide bearing material/residue

Radionuclides of Concern if any:
- ☑ uranium
- ☐ thorium
- ☐ transuranics (TRU)

Basis:
- ☑ knowledge of the material
- ☑ RMMA generated
- ○ analytical data attached
- ☐ Other: _____

4. Identify the container or repository type(s) in which the waste is (or is expected to be) managed on-site:
- ☐ drum
- ☑ box
- ☑ Sea/Land
- ☑ soil/debris pile
- ☐ small container (5 gal. or less)
- ☐ landfill, pit, or other land-based unit
- ☐ discharge to WWTS

Fernald Environmental Management Project
MATERIAL EVALUATION FORM F)

007211

*Evaluation Section*

**A. WASTE STREAM IDENTIFICATION**

| 1. MEF #: 2241 | Revision No.: 1 | 2. Date Completed: 9/13/94 | 3. Material Type / Source Code of original material: Mat. 003 Src. 701 |
|---|---|---|---|
| 4. Evaluator: [redacted] | | 5. Phone No.: 8427 | 6. Badge No./Co. Name: 8850 / FERMC |

**B. MATERIAL REGULATORY STATUS** (check all that apply)

| Regulated: | Material Specific Regulation: | Regulated: | Material Specific Regulation: |
|---|---|---|---|
| ___ yes ✓ no | TSCA PCB Waste | ___ yes ✓ no | High Level Radioactive Waste |
| ___ yes ✓ no | Asbestos Containing-Waste Materials | ___ yes ✓ no | Transuranic (TRU) Waste |
| ___ yes ✓ no | OAC Infectious waste | ___ yes ✓ no | AEA 11(e)(2) Byproduct Material |
| ✓ yes ___ no | OAC Solid Waste (RCRA Subtitle D) | ___ yes ✓ no | Source (or) Special Nuclear Material |
| ✓ yes ___ no | RCRA Solid Waste (RCRA Subtitle C) | ✓ yes ___ no | Low Level Radioactive Waste (LLRW). |
| ___ yes ✓ no | RCRA Hazardous Waste | ___ yes ✓ no | Non-Radioactive waste. *** |

This material may be free released based on radiological survey

Hazardous Waste Code(s): none

*** Concurrence. Radiological Assessment- Date: _____

Re-evaluation Date: _____

Note: Waste stream must be re-evaluated by WCS if it is generated after the re-evaluation date listed above or when the stream/generating process changes.

**C. MATERIAL MANAGEMENT**

| 1. Waste Form Criteria: | 2. Container Specification: | 3. Reactivity Group Code(s): |
|---|---|---|
| ___ yes ✓ no Material contains free liquids. | NA | NA |
| ___ yes ✓ no Material is a wastewater. (40 CFR 268.2(f)). | | |
| ___ yes ✓ no Material meets the physical definition of debris (40 CFR 268.2(g)). | | |
| ___ yes ✓ no Waste meets NVO-325 Waste Acceptance Criteria (See NTS Waste Accepatance Criteria in MEF file). | | |

**D. WASTE CHARACTERIZATION APPROVAL**

Name: [redacted] Signature: [redacted]

**E. DISTRIBUTION**

| | | | |
|---|---|---|---|
| ___ Generator | | ___ HW/MW Handling and Disposition | |
| X MC&A | H. Kane | ___ LLW Handling and Disposal | |
| X Waste Treatment and Storage | M. Hunger | ___ Waste Characterization Files | |
| ___ Sample Disposition (if sampled) | | X Other | L. Bailey |

# Item 4 - Debris Containing Hazardous Waste - MEF No. 2613

Fernald Environmental Management Pro
ATERIAL EVALUATION FORM (M

007211

*Requestor Section*



**A. REQUESTOR/WASTE STREAM IDENTIFICATION**

| 1. MEF#: | Original: ✓ Revision: | 2. Date Submitted: | 3. Material Type and Source Code: |
|---|---|---|---|
| 2613 | | 7/12/94 | 003 - 122 |
| 4. Requestor Name: [redacted] | | 5. Phone No.: 6634 | 6. Badge No./Co. Name: 8986 / FERMCO |

| 1. Provide best descriptive name for material: | 2. Does this material originate in a HWMU or SWMU? Unit Name/No. | 3. Project, Activity, or Work Area generating waste (include CRU # if applicable). |
|---|---|---|
| Scabbled concrete from under Detrex Still | yes<br>Detrex Still / 36 | CRU3 Detrex Still HWMU Closure |

| 4. Date of first or expected generation: | 5. Generation Quantity: | 6. Generation frequency: | 7. Similar waste stream MEF# (or MTC/SRC): |
|---|---|---|---|
| ☑ estimate; ☐ actual Sept. '94 | 3 $ft^3$ | once | N/A |

8. Provide a detailed description of what the material is:

Scabbled Concrete generated from under the Detrex Still

9. Provide a detailed description of how and where (specific origin) the waste stream is/will be generated, including any units which manage the material:

Generated during decontamination of concrete floor in the area of the Detrex Still Plant 1 ~~Bldg~~ Building 1A.

[Note: Generator must attach all supporting documentation concerning items 8 and 9.] ○ additional narrative; ○ SOP;

○ MSDS; ○ AEDO Log excerpt; ○ release report; ○ manufacturing specs; ~~○ Other~~: Closure Report

Fernald Environmental Management P ct
MATERIAL EVALUATION FORM

007211

*Requestor Section*

pag

**PHYSICAL CHARACTERISTICS**

Describe Color/Appearance:
gray concrete

2. Phase:
☐ Liquid
☒ Solid debris/rubble
☐ Semi-solid/sludge
☐ Dry solid residue
☐ dry powder/dusty residue
☐ Other, specify:

3. Contains Free Liquids:
☐ yes ☒ no ☐ unknown
based on:
☐ PFLT (results attached)
☐ Visuals (results attached)
☒ Knowledge of waste

OTE: DO NOT SMELL THE MATERIAL]
Note Any Incidental Odor:
none

5. Layers:
☒ single layer
☐ bi-layered
☐ multi-layered

6. pH: specify range or "unknown"
NA
☐ estimate: ○ documentation attached

7. Flash Point: Specify range or "unknc
NA
☐ estimate: ○ documentation attached

**MATERIAL COMPOSITION**

| Composition: | Min | Max: | circle |
|---|---|---|---|
| Concrete | 100 | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| Total Maximum: | | 100 | % |

naximum must equal or exceed 100 %

:
☑ knowledge of the material
☐ analytical data attached

2. Does the material contain any of the following?
☐ asbestos ☐ polychlorinated biphenyls (PCBs)
☐ infectious waste
☐ reactives (circle applicable items):
water reactive, explosive, cyanide/sulfide, shock sensitive, normally unstable
*exclude materials which normally produce hydroge*
☐ toxicity characteristic metals (circle applicable items):
arsenic, barium, cadmium, chromium, lead, mercury, nickel, selenium, silver, thallium
{or}
☑ None of the above
{or}
☐ Unknown 21/10/95

Basis:
☑ knowledge of the material
○ analytical data (attached)

adionuclide Contamination:
☐ material is **not contaminated** with radionuclides
☑ material contains incidental radionuclide contamination
☐ radionuclide bearing material/residue

Radionuclides of Concern if any:
☑ uranium
☐ thorium
☐ transuranics (TRU)

:
☑ knowledge of the material
☐ analytical data attached
☐ RMMA generated
☐ Other: _____

4. Identify the container or repository type(s) in which the wa (or is expected to be) managed on-site:
☑ drum ☐ box
☐ Sea/Land ☐ soil/debris pile
☐ small container (5 gal. or less)
☐ landfill, pit, or other land-based unit
☐ discharge to WWTS

# Fernald Environmental Management Project
# TERIAL EVALUATION FORM (MEF)

007211

*Evaluation Section*

## A. WASTE STREAM IDENTIFICATION

| | | |
|---|---|---|
| 1. MEF # 2613 Revision No.: 0 | 2. Date Completed: 02/15/95 | 3. Material Type / Source Code of original material: Mat. 003 Src. 122 |
| 4. Evaluator: [redacted] | 5. Phone No.: 8427 | 6. Badge No./Co. Name: 8850/FERMCO |

## B. MATERIAL REGULATORY STATUS (check all that apply)

| Regulated: | Material Specific Regulation: | Regulated: | Material Specific Regulation: |
|---|---|---|---|
| _X_ yes ___ no | TSCA PCB Waste | ___ yes _X_ no | High Level Radioactive Waste |
| ___ yes _X_ no | Asbestos Containing-Waste Materials | ___ yes _X_ no | Transuranic (TRU) Waste |
| ___ yes _X_ no | OAC Infectious waste | ___ yes _X_ no | AEA 11(e)(2) Byproduct Material |
| ___ yes _X_ no | OAC Solid Waste (RCRA Subtitle D) | ___ yes _X_ no | Source (or) Special Nuclear Material |
| _X_ yes ___ no | RCRA Solid Waste (RCRA Subtitle C) | _X_ yes ___ no | Low Level Radioactive Waste (LLRW). |
| _X_ yes ___ no | RCRA Hazardous Waste | ___ yes _X_ no | Non-Radioactive waste. *** |

Hazardous Waste Code(s): _F001, F002, _____

*** Concurrence, Radiological Assessment- Date: _____

Re-evaluation Date: _____

Note: Waste stream must be re-evaluated by WCS if it is generated after the re-evaluation date listed above or when the stream/generating process changes.

## C. MATERIAL MANAGEMENT

1. Waste Form Criteria:

___ yes _X_ no Material contains free liquids.

___ yes _X_ no Material is a wastewater. (40 CFR 268.2(f)).

_X_ yes ___ no Material meets the physical definition of debris (40 CFR 268.2(g)).

___ yes _X_ no Waste meets NVO-325 Waste Acceptance Criteria (See NTS Waste Accepatance Criteria in MEF file).

2. Container Specification: Carbon steel

3. Reactivity Group Code(s): A

## D. WASTE CHARACTERIZATION APPROVAL

Name: [redacted]

Signat[redacted]

## E. DISTRIBUTION

| | | | |
|---|---|---|---|
| _X_ Generator | Michael Heinen | _X_ HW/MW Handling and Disposition | John Witzeman |
| _X_ MC&A | Harold Knue | ___ LLW Handling and Disposal | |
| _X_ Waste Treatment and Storage | Matt Harper | _X_ Waste Characterization Files | |
| ___ Sample Disposition (if sampled) | | _X_ Other | Lori Hurst |

**MEF No: 2613**
**MTC:003 SRC:122**
**SAP No.: 04.48.01**
**Waste Codes: F001, F002**

**Date:02/16/95**

**Process Knowledge File Narrative**

**Determination:**

RCRA Hazardous

Descriptive Name:

Scabbled concrete from under the Detrex Still

Process Generating the Waste:

This wastestream was generated by the removal/scabbling of concrete from the floors under the Detrex Still as part of Removal Action #26. The Detrex Still is located at the north end of Building 1A in Plant 1 . This still was used to recover spent chlorinated solvents from both degreasing and non-degreasing operations at the FMPC during the period from September 1956 to January 13, 1981. Solvents containing PCB were potentially processed through the Detrex Still from National Electric Coil of Louisville, KY. On January 13, 1981 the Detrex Still system was shut down and partially disassembled. A small amount of distillation residues have remained in the tank since shutdown. Spills potentially occurred at the Detrex Still area from leaking valves or lines or during tank stillbottom cleanout as described in SOP 1-C-906 included in the CPID. After the still was removed the contaminated concrete under the still was removed.

Radiological/Chemical Composition:

The spent chlorinated solvents recovered from the Detrex Still included tetrachloroethylene, trichloroethylene and 1,1,1-trichloroethane which are RCRA listed hazardous wastes F001, F002. The scabbled concrete is also a listed hazardous waste F001, F002 by virtue of the derived from rule. Analytical results indicate the scabbled concrete contains Acetone (0.029ppm), Tetrachloroethene (0.007 ppm), 1,1,1-Trichloroethane (0.0741), Toluene (0.001 ppm), 2-Methylphenol 0.008 ppm), 4-Methylphenol (0.673 ppm), Pentachlorophenol (0.186ppm), Barium (0.351ppm), Total U (484.045ppm), Total Th (9.000ppm) and various isotopic constituents. pH results ranged from 11.50 to 11.62 S.U. and this concrete is non-corrosive. No TC constituents were detected above the regulatory limits and no D waste codes are applicable. Although non-chlorinated solvents (Acetone, Toluene and Methylphenol) were detected, no listed waste codes apply except F001, F002 since none of the non-chlorinated solvents used at the site were intended for Detrex Still recovery and it is not know if the solvents

met the 10% before use criteria. Analysis for PCB ranged from 3.4 ppm to 73 ppm which is above 50 ppm regulatory limit, therefore this concrete is also regulated as a TSCA waste.

The concrete will be monitored by Radiation Safety for proper radiological dispositioning. In summary this material is radiologically contaminated, RCRA listed hazardous, TSCA regulated waste.

Inventory of Materials:

(Please see attachment to the MEF for detailed listing.)

Reference Documents:

Closure Plan Information and Data for the Detrex Still (CPID), October, 1993.

WMCO:EC(SW/TSP):91-026, Memo form S. K. Kaster to T. J. Walsh, February 7, 1991: RCRA Implementation Plan Task #3 - Hazardous Waste Management Unit Review Investigation: Detrex Still.

Quanterra Analytical Report 6271

MEF No.: 2613
MTC: 003 SRC: 122
SAP No.: 04.48.01

Date: 02/06/95

## Sampling and Analysis Narrative

The waste was determined to be RCRA listed hazardous waste (F001, F002) based on process knowledge. Analytical results obtained from Project Specific Plan 04.48.01 indicate the scabbled concrete contains Acetone (0.029ppm), Tetrachloroethene (0.007 ppm), 1,1,1-Trichloroethane (0.0741), Toluene (0.001 ppm), 2-Methylphenol 0.008 ppm), 4-Methylphenol (0.673 ppm), Pentachlorophenol (0.186ppm), Barium (0.351ppm), Total U (484.045ppm), Total Th (9.000ppm) and various isotopic constituents. pH results range from 11.50 to 11.62 S.U. and this concrete is non-corrosive. No TC constituents were detected above the regulatory limits and no D waste codes are applicable. PCBs were detected greater than 50ppm and this concrete is also a regulated TSCA waste.

# Item 5 - Waste Waters-Identification and Disposal - MEF No. 2611

"rnald Environmental Management Pro
ATERIAL EVALUATION FORM (M

007211

*Requestor Section*



**EQUESTOR/WASTE STREAM IDENTIFICATION**

| | | |
|---|---|---|
| EF#: 2611 Original: ✓ Revision: | 2. Date Submitted: 7/12/94 | 3. Material Type and Source Code: 012 - 122 |
| questor Name: [redacted] | 5. Phone No.: 6634 | 6. Badge No./Co. Name: 8986 / FERMCO |

**ENERATION INFORMATION**

| | | | |
|---|---|---|---|
| ovide best descriptive name for material: decontamination wash water/flush water | 2. Does this material originate in a HWMU or SWMU? yes Unit Name/No. Detrex Still / 26 | | 3. Project, Activity, or Work Area generating waste (include CRU # if applicable). CRU3 Detrex Still Closure |
| te of first or expected generation: Sept. 1994 mate; ☐ actual | 5. Generation Quantity: 100 gallons | 6. Generation frequency: Once | 7. Similar waste stream MEF# (or MTC/SRC): NA |

ovide a detailed description of what the material is:

Wash water from the decontamination of the Detrex Still outlet piping, solvent condenser, structural supports and sampling equipment.

vide a detailed description of how and where (specific origin) the waste stream is/will be generated, including any units which manage the material:

Generated during the decontamination of the Detrex Still outlet piping, solvent condenser, Structural Supports and sampling equipment at Plant 1 Building 1A

Generator must attach all supporting documentation concerning items 8 and 9.] ○ additional narrative; ○ SOP;

DS; ○ AEDO Log excerpt; ○ release report; ○ manufacturing specs; ○ Other: Closure Plan

**HYSICAL CHARACTERISTICS**

escribe **Color/Appearance:**
lear to gray
water / sediment

**2. Phase:**
☑ Liquid ☐ Solid debris/rubble
☐ Semi-solid/sludge ☐ Dry solid residue
☐ dry powder/dusty residue ☐ Other, specify:

**3. Contains Free Liquids:**
☑ yes ☐ no ☐ unknown
based on:
○ PFLT (results attached)
○ Visuals (results attached)
☑ Knowledge of waste

E: DO NOT SMELL THE MATERIAL]
te Any Incidental Odor:
none

**5. Layers:**
☐ single layer
☑ bi-layered water sediment
☐ multi-layered

**6. pH:** specify range or "unknown"
~7
☑ estimate; ○ documentation attached

**7. Flash Point:** Specify range or "unknown"
>140°F
☑ estimate; ○ documentation attached

**IATERIAL COMPOSITION**

omposition:

| | Min | Max: circle |
|---|---|---|
| water | | 100 (%) (or) ppm |
| | | % (or) ppm |
| | | % (or) ppm |
| | | % (or) ppm |
| | | % (or) ppm |
| | | % (or) ppm |
| | | % (or) ppm |
| | | % (or) ppm |
| | | % (or) ppm |

Total Maximum: 100 %
aximum must equal or exceed 100 %

:
✓ knowledge of the material
analytical data attached

**2. Does the material contain any of the following?**
☐ asbestos ☐ polychlorinated biphenyls (PCBs)
☐ infectious waste
☐ reactives (circle applicable items):
water reactive explosive
cyanide/sulfide shock sensitive
normally unstable
*exclude materials which normally produce hydrogen gas.*
☐ toxicity characteristic metals (circle applicable items):
arsenic barium
cadmium chromium
lead mercury
nickel selenium
silver thallium
{or}
☑ None of the above
{or}
☐ Unknown

Basis:
☑ knowledge of the material
○ analytical data (attached)

adionuclide Contamination:
material is **not contaminated** with radionuclides
✓ material contains incidental radionuclide contamination
radionuclide bearing material/residue

Radionuclides of Concern if any:
☑ uranium
☐ thorium
☐ transuranics (TRU)

:
✓ knowledge of the material
analytical data attached
☐ RMMA generated
☐ Other: _____

**4. Identify the container or repository type(s) in which the waste is (or is expected to be) managed on-site:**
☑ drum ☐ box
☐ Sea/Land ☐ soil/debris pile
☐ small container (5 gal. or less)
☐ landfill, pit, or other land-based unit
☐ discharge to WWTS

Fernald Environmental Management Project
.TERIAL EVALUATION FORM (MEF)

007211

*Evaluation Section*

**ASTE STREAM IDENTIFICATION**

| | | |
|---|---|---|
| F # 2611 Revision No.: 0 | 2. Date Completed: 12/16/94 | 3. Material Type / Source Code of original material: Mat. 012 Src. 122 |
| lua [redacted] | 5. Phone No.: 8427 | 6. Badge No./Co. Name: 8850/FERMCO |

**TERIAL REGULATORY STATUS** (check all that apply)

| ted: | Material Specific Regulation: | Regulated: | Material Specific Regulation: |
|---|---|---|---|
| _X_ no | TSCA PCB Waste | ___ yes _X_ no | High Level Radioactive Waste |
| _X_ no | Asbestos Containing-Waste Materials | ___ yes _X_ no | Transuranic (TRU) Waste |
| _X_ no | OAC Infectious waste | ___ yes _X_ no | AEA 11(e)(2) Byproduct Material |
| s __ no | OAC Solid Waste (RCRA Subtitle D) | ___ yes _X_ no | Source (or) Special Nuclear Material |
| s ___ no | RCRA Solid Waste (RCRA Subtitle C) | _X_ yes __ no | Low Level Radioactive Waste (LLRW). |
| s ___ no | RCRA Hazardous Waste | ___ yes _X_ no | Non-Radioactive waste. *** |

ous Waste Code(s): F001, F002

*** Concurrence, Radiological Assessment- Date: _____

Re-evaluation Date: _____

Note: Waste stream must be re-evaluated by WCS if it is generated after the re-evaluation date listed above or when the stream/generating process changes.

**TERIAL MANAGEMENT**

| te Form Criteria: | | 2. Container Specification: | 3. Reactivity Group Code(s): |
|---|---|---|---|
| s ___ no | Material contains free liquids. | Carbon Steel | G |
| s ___ no | Material is a wastewater. (40 CFR 268.2(f)). | | |
| _X_ no | Material meets the physical definition of debris (40 CFR 268.2(g)). | | |
| _X_ no | Waste meets NVO-325 Waste Acceptance Criteria (See NTS Waste Accepatance Criteria in MEF file). | | |

**ASTE CHARACTERIZATION APPROVAL**

Linda Barlow

Signature: Linda Barlow

**STRIBUTION**

| | | | |
|---|---|---|---|
| ienerator | Don Bechelet / Mike Heinen | ___ HW/MW Handling and Disposition | |
| IC&A | Harold Knue | ___ LLW Handling and Disposal | |
| Vaste Treatment and Storage | Matt Harper | _X_ Waste Characterization Files | |
| ample Disposition (if sampled) | | ___ Other | |

000506

# Item 6 - Other residues (Tank Residues) - MEF 2085

Fernald Environmental Management Project
\TERIAL EVALUATION FORM (M

007211

*Requestor Section*



:QUESTOR/WASTE STREAM IDENTIFICATION

| :F#: Original: ____ Revision: ✓ | 2. Date Submitted: | 3. Material Type and Source Code: |
|---|---|---|
| '85 | 8/2/94 | 043/122 |
| questor Name: [redacted] | 5. Phone No.: 513/738-6222 | 6. Badge No./Co. Name: 71860/JDLOBS |

:NERATION INFORMATION

| vide best descriptive name for material: | 2. Does this material originate in a HWMU or SWMU? | | 3. Project, Activity, or Work Area generating waste (include CRU # if applicable). |
|---|---|---|---|
| CHLORINATED SOLVENTS/ STILL BOTTOMS | 4/5 Unit Name/No. HWMU #26, DETREX STILL | | CRU3 UNIT SHUTDOWN Plant 1 Bldg 1A |
| e of first or expected generation: | 5. Generation Quantity: | 6. Generation frequency: | 7. Similar waste stream MEF# (or MTC/SRC): |
| nate: ☐ actual 12/4/92 | ~ 100 GALS. | NO | NONE NOTED |

vide a detailed description of what the material is:

The waste consists of spent solvents/bottoms that remained in the Detrex Still at the time the unit was taken out of operation.

ide a detailed description of how and where (specific origin) the waste stream is/will be generated, including any units which manage the material:

The Detrex Still (HWMU #26), located at the north end of Building 1A in Plant 1, was used to recover the following spent chlorinated solvents: Tetrachloroethylene (PCE), Trichloroethylene (TCE) and 1,1,1-Trichloroethane (TCA). The unit consisted of a still tank, solvent condenser, connecting piping & valves, a pump and equipment structure supports. Spent solvents managed in the still were generated on site, and were also received from National Electric Coil (NEC). NEC solvents were generated during degreasing of equipment from the Paducah Gaseous Diffusion Plant.

enerator must attach all supporting documentation concerning items 8 and 9.] ☐ additional narrative: ☐ SOP: 000908

S: ☐ AEDO Log excerpt: ☐ release report: ☐ manufacturing specs: ☑ Other: CPID, 10/93 Operating Record Part B, Rev 0 Task 2/3 RPT

. Environmental Management Pr
ATERIAL EVALUATION FORM (M

007211

*Requestor Section*



HYSICAL CHARACTERISTICS

escribe Color/Appearance:

Black granular and black liquid

2. Phase:
- ☑ Liquid
- ☑ Semi-solid/sludge
- ☐ dry powder/dusty residue
- ☐ Solid debris/rubble
- ☐ Dry solid residue
- ☐ Other, specify:

3. Contains Free Liquids:
- ☑ yes
- ☐ no
- ☐ unknown

based on:
- ○ PFLT (results attached)
- ○ Visuals (results attached)
- ☑ Knowledge of waste

E: DO NOT SMELL THE MATERIAL]
te Any Incidental Odor:

none noted

5. Layers:
- ☐ single layer
- ☑ bi-layered
- ☐ multi-layered

6. pH: specify range or "unknown"

neutral (organic material)

☑ estimate: ○ documentation attached

7. Flash Point: Specify range or "unknown"

>200 °F

☐ estimate; ☑ documentation attached

ATERIAL COMPOSITION

| mposition: | Min | Max: | circle |
|---|---|---|---|
| solids | 70 | 75 | (%) (or) ppm |
| liquids | 25 | 30 | (%) (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |

Total Maximum: ____ %

ximum must equal or exceed 100 %

✓ knowledge of the material
hain of custody notations
nalytical data attached

2. Does the material contain any of the following?
- ☐ asbestos
- ☐ polychlorinated biphenyls (PCBs)
- ☐ infectious waste
- ☐ reactives (circle applicable items):
  - water reactive
  - explosive
  - cyanide/sulfide
  - shock sensitive
  - normally unstable
  - *exclude materials which normally produce hydrogen gas.*
- ☑ toxicity characteristic metals (circle applicable items):
  - arsenic
  - barium
  - cadmium
  - chromium
  - lead
  - mercury
  - nickel
  - selenium
  - silver
  - thallium

less than TC levels except chromium

{or}

☐ None of the above

{or}

☐ Unknown

Basis:
- ☐ knowledge of the material
- ☑ analytical data (attached)

lionuclide Contamination:

Radionuclides of Concern if any:

naterial is **not contaminated** with radionuclides

✓ naterial contains incidental radionuclide contamination

adionuclide bearing material/residue

- ☑ uranium
- ☐ thorium
- ☐ transuranics (TRU)

nowledge of the material

✓ nalytical data attached

- ☑ RMMA generated
- ☐ Other: _____

4. Identify the container or repository type(s) in which the waste is (or is expected to be) managed on-site:
- ☑ drum
- ☐ box
- ☐ Sea/Land
- ☐ soil/debris pile
- ☐ small container (5 gal. or less)
- ☐ landfill, pit, or other land-based unit
- ☐ discharge to WWTS

000909

Fernald Environmental Management Project
'ATERIAL EVALUATION FORM (

007211

*Evaluation Section*

**A. WASTE STREAM IDENTIFICATION**

| 1. MEF #: 2085 | Revision No.: | 2. Date Completed: 8/2/94 | 3. Material Type / Source Code of original material: Mat. 043 Src. 122 |
|---|---|---|---|
| 4. Evaluator: [redacted] | | 5. Phone No.: 513/738-6222 | 6. Badge No./Co. Name: 71860/SOCOBS |

**B. MATERIAL REGULATORY STATUS** (check all that apply)

| Regulated: | Material Specific Regulation: | Regulated: | Material Specific Regulation: |
|---|---|---|---|
| ___ yes ✓ no | TSCA PCB Waste | ___ yes ✓ no | High Level Radioactive Waste |
| ___ yes ✓ no | Asbestos Containing-Waste Materials | ___ yes ✓ no | Transuranic (TRU) Waste |
| ___ yes ✓ no | OAC Infectious waste | ___ yes ✓ no | AEA 11(e)(2) Byproduct Material |
| ___ yes ✓ no | OAC Solid Waste (RCRA Subtitle D) | ___ yes ✓ no | Source (or) Special Nuclear Material |
| ✓ yes ___ no | RCRA Solid Waste (RCRA Subtitle C) | ✓ yes ___ no | Low Level Radioactive Waste (LLRW). |
| ✓ yes ___ no | RCRA Hazardous Waste | ___ yes ✓ no | Non-Radioactive waste. *** |

Hazardous Waste Code(s): F001, F002, D002

*** Concurrence, Radiological Assessment- Date: _____

Re-evaluation Date: _____

Note: Waste stream must be re-evaluated by WCS if it is generated after the re-evaluation date listed above or when the stream/generating process changes.

**C. MATERIAL MANAGEMENT**

| 1. Waste Form Criteria: | 2. Container Specification: | 3. Reactivity Group Code(s): |
|---|---|---|
| ✓ yes ___ no Material contains free liquids.<br>___ yes ✓ no Material is a wastewater. (40 CFR 268.2(f)).<br>___ yes ✓ no Material meets the physical definition of debris (40 CFR 268.2(g)).<br>___ yes ✓ no Waste meets NVO-325 Waste Acceptance Criteria (See NTS Waste Accepatance Criteria in MEF file). | Carbon steel | B |

**D. WASTE CHARACTERIZATION APPROVAL**

Nar[redacted] Signatu[redacted]

**E. DISTRIBUTION**

| | | | |
|---|---|---|---|
| ___ Generator | | ___ HW/MW Handling and Disposition | |
| X MC&A | K. Knue | ___ LLW Handling and Disposal | |
| X Waste Treatment and Storage | M. Hand | ___ Waste Characterization Files | |
| ___ Sample Disposition (if sampled) | | X Other | Mike Heine |

000910

ORM EVAL.FR1, Revision 2.4, 02/04/94 wcpform\eval.fr1

DATE: 08/31/94

MEF No. 2085
SRC:122-Detrex Still
MTC: 013-Solvent

**Process Knowledge File Narrative**

Determination:

| | | |
|---|---|---|
| RCRA Hazardous Mixed Waste | F001, F002 | Tetrachloroethylene, Trichloroethylene, 1,1,1-Trichloroethane |
| | D007 | Chromium |

Description Name:
The wastestream consists of spent solvents/bottoms that remained in the Detrex Still at the time the unit was taken out of operation.

Process Generating the Waste:
The Detrex Still (HWMU #26), located at the North end of Building 1A in Plant 1, was used to recover the following spent chlorinated solvents: Tetrachloroethylene, Trichloroethylene and 1,1,1-Trichloroethane. The unit consisted of a still tank, solvent condenser, connecting piping and valves, a pump and equipment structure supports. Spent solvents managed in the still were generated on site, and were also received from National Electric Coil (NEC).

Degreasing solvents from NEC were generated during industrial scale degreasing of equipment from the Paducah Gaseous Diffusion Plant (F001). On-site sources of the solvents of concern include non-industrial scale degreasing and non-degreasing activities (F002).

Radiological/Chemical Composition:
Radiological data indicates a total U concentration of 6,330 ppm and a $U^{235}$ content of 0.385 pCi/g. The cited values reflect the highest concentrations detected.

Statistical analysis of sample data indicates the presence of the following compounds: Barium (3.63 ppm), Cadmium (0.23 ppm), Chromium (60.73 ppm), Lead (1.26 ppm), Selenium (0.30), Acetone (243,928 ppm), Tetrachloroethylene (1,732.00 ppm), and Trichloroethylene (665.79). Data is cited at the upper CI Limit (90%) and with the exception of Acetone, reflects the TCL Procedure.

The only metal TC regulatory level exceeded was that for chromium (D007 - 5.0 mg/l). While organic TC regulatory levels were exceeded for Tetrachloroethylene (D039 - 0.7 mg/l) and Trichloroethylene (D040 - 0.5 mg/l), these constituents are addressed in the 40 CFR Part 268 treatment standards for the F001 and F002 waste codes. Consequently, the characteristic D-waste codes were not assigned.

While analytical data also indicates the presence of Acetone, a non-chlorinated solvent constituent, the source of this compound is not known. Consequently, it

before use criteria. Therefore, per the National Contingency Plan (3/8/90) and the FEMP's Waste Determination Plan (09/90), the F003 waste code was not assigned.

Analytical data indicates a Flash Point of greater than 200 degrees F. pH data is not available; however the nature of the material, organic solvent, suggest a neutral pH. Consequently, the wastestream is neither ignitable nor corrosive.

In summary, the wastestream is classified as a F001/F002/D007 RCRA hazardous, low level radioactive mixed waste.

Inventory:
According to Section 1 (Material Generator) of the 12/04/92 MEF, the wastestream consists of approximately 100 gallons of solvent/still bottoms that remained in the Detrex Still at the time the unit was shut down. This includes lot code R050-122-P043-0344 2 drums.

Reference Documents:
MEF 2085 File Documents
HWMU #26 File, Facility Operating Record
Closure Plan Information and Data for the Detrex Still (10/93)
Task 2/3 Report (01/29/93)
Part B Permit, Rev. 0 (10/91)
Waste Determination Plan (09/90)
National Contingency Plan (03/08/90)

DATE: 08/31/94

MEF No. 2085
SRC:122-Detrex Still
MTC: 043-Solvent/Sludge

## Sampling and Analysis Narrative

The wastestream consists of spent solvents/bottoms that remained in the Detrex Still (HWMU #26) at the time the unit was taken out of operation. The unit was used to recover the following spent chlorinated solvents: Tetrachloroethylene, Trichloroethylene and 1,1,1-Trichloroethane. Degreasing solvents from NEC were generated during industrial scale degreasing of equipment from the Paducah Gaseous Diffusion Plant (F001). On-site sources of the solvents of concern include non-industrial scale degreasing and non-degreasing activities (F002).

Radiological data indicates a total U concentration of 6,330 ppm and a $U^{238}$ content of 0.385 pCi/g. The cited values reflect the highest concentrations detected.

Statistical analysis of sample data indicates the presence of the following compounds: Barium (3.63 ppm), Cadmium (0.23 ppm), Chromium (60.73 ppm), Lead (1.26 ppm), Selenium (0.30), Acetone (243,928 ppm), Tetrachloroethylene (1,732.00 ppm), and Trichloroethylene (665.79). Data is cited at the upper CI Limit (90%) and with the exception of Acetone, reflects the TCL Procedure.

The only metal TC regulatory level exceeded was that for chromium (D007 - 5.0 mg/l). While organic TC regulatory levels were exceeded for Tetrachloroethylene (D039 - 0.7 mg/l) and Trichloroethylene (D040 - 0.5 mg/l), these constituents are addressed in the 40 CFR Part 268 treatment standards for the F001 and F002 waste codes. Consequently, the characteristic D-waste codes were not assigned.

While analytical data also indicates the presence of Acetone, a non-chlorinated solvent constituent, the source of this compound is not known. Consequently, it is not known if 1) it was used for its solvent properties or 2) met the 10% before use criteria. Therefore, per the National Contingency Plan (3/8/90) and the FEMP's Waste Determination Plan (09/90), the F003 waste code was not assigned.

Analytical data indicates a Flash Point of greater than 200 degrees F. pH data is not available; however the nature of the waste (organic solvent) indicates the pH is neutral. Consequently, the wastestream is neither ignitable nor corrosive.

In summary, the wastestream is classified as a F001/F002/D007 RCRA hazardous, low level radioactive mixed waste.

# Item 7 - Other residues (Hazardous Contact Waste) - MEF 2612

'rnald Environmental Management Pro'
ATERIAL EVALUATION FORM (M

007211

*Requestor Section*



EQUESTOR/WASTE STREAM IDENTIFICATION

| | | |
|---|---|---|
| EF#: 2612 Original: ✓ Revision: | 2. Date Submitted: 7/12/94 | 3. Material Type and Source Code: 003 - 122 |
| questor Name: [redacted] | 5. Phone No.: 6634 | 6. Badge No./Co. Name: 8986 /FERMCO |

ENERATION INFORMATION

| | | | |
|---|---|---|---|
| vide best descriptive name for material: sonal Protective uipment + other ntact waste from contamination of Detrex Still | 2. Does this material originate in a HWMU or SWMU? Yes Unit Name/No. Detrex Still / 26 | | 3. Project, Activity, or Work Area generating waste (include CRU # if applicable). CRU3 Detrex Still HWMU Closure |
| te of first or expected generation: Sept. '94 mate; ☐ actual | 5. Generation Quantity: | 6. Generation frequency: once | 7. Similar waste stream MEF# (or MTC/SRC): |

vide a detailed description of what the material is:

PPE and plastic, paper + other trash used in the ~~con~~ decontamination of the Detrex Still and associated structures which came in contact with the still contents.

vide a detailed description of how and where (specific origin) the waste stream is/will be generated, including any units which manage the material:

Generated ~~at~~ at the Detrex Still Plant / Building 1A

Generator must attach all supporting documentation concerning items 8 and 9.] ○ additional narrative; ○ SOP;

DS; ○ AEDO Log excerpt; ○ release report; ○ manufacturing specs; ○ Other: Closure Plan

Fernald Environmental Management P[illegible]
MATERIAL EVALUATION FORM

007211

*Requestor Section*



## PHYSICAL CHARACTERISTICS

Describe Color/Appearance:

PPE, paper, trash

2. Phase:
- ☐ Liquid
- ☑ Solid debris/rubble
- ☐ Semi-solid/sludge
- ☐ Dry solid residue
- ☐ dry powder/dusty residue
- ☐ Other, specify:

3. Contains Free Liquids:
- ☐ yes
- ☑ no
- ☐ unknown

based on:
- ☐ PFLT (results attached)
- ☐ Visuals (results attached)
- ☑ Knowledge of waste

TE: DO NOT SMELL THE MATERIAL!
ote Any Incidental Odor:

none

5. Layers:
- ☑ single layer
- ☐ bi-layered
- ☐ multi-layered

6. pH: specify range or "unknown"

NA

☐ estimate; ○ documentation attached

7. Flash Point: Specify range or "unknown"

NA

☐ estimate; ○ documentation attached

## MATERIAL COMPOSITION

| omposition: | Min | Max: | circle |
|---|---|---|---|
| PPE, paper, trash | | 100 | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| Total Maximum: | | 100 | % |

aximum must equal or exceed 100 %

✓ knowledge of the material

analytical data attached

2. Does the material contain any of the following?
- ☐ asbestos
- ☐ polychlorinated biphenyls (PCBs)
- ☐ infectious waste
- ☐ reactives (circle applicable items):
  - water reactive
  - explosive
  - cyanide/sulfide
  - shock sensitive
  - normally unstable
  - *exclude materials which normally produce hydrogen gas.*
- ☐ toxicity characteristic metals (circle applicable items):
  - arsenic
  - barium
  - cadmium
  - chromium
  - lead
  - mercury
  - nickel
  - selenium
  - silver
  - thallium

(or)

- ☑ None of the above

(or)

- ☐ Unknown

Basis:
- ☑ knowledge of the material
- ○ analytical data (attached)

idionuclide Contamination:
- material is not contaminated with radionuclides
- ✓ material contains incidental radionuclide contamination
- radionuclide bearing material/residue

✓ knowledge of the material
- analytical data attached
- ☐ RMMA generated
- ☐ Other: _____

Radionuclides of Concern if any:
- ☑ uranium
- ☐ thorium
- ☐ transuranics (TRU)

4. Identify the container or repository type(s) in which the waste is (or is expected to be) managed on-site:
- ☑ drum
- ☐ box
- ☐ Sea/Land
- ☐ soil/debris pile
- ☐ small container (5 gal. or less)
- ☐ landfill, pit, or other land-based unit
- ☐ discharge to WWTS

Fernald Environmental Management Project
'ERIAL EVALUATION FORM (MEF

007211

*Evaluation Section*

**TE STREAM IDENTIFICATION**

| | | |
|---|---|---|
| /: 2612 Revision No.: 0 | 2. Date Completed: 7/14/94 | 3. Material Type / Source Code of original material: Mat. 003 Src. 122 |
| [redacted] | 5. Phone No.: 6222 | 6. Badge No./Co. Name: 8850 / FERMCO |

**ERIAL REGULATORY STATUS** (check all that apply)

| l: | Material Specific Regulation: | Regulated: | Material Specific Regulation: |
|---|---|---|---|
| ✓ no | TSCA PCB Waste | ___ yes ✓ no | High Level Radioactive Waste |
| ✓ no | Asbestos Containing-Waste Materials | ___ yes ✓ no | Transuranic (TRU) Waste |
| ✓ no | OAC Infectious waste | ___ yes ✓ no | AEA 11(e)(2) Byproduct Material |
| ___ no | OAC Solid Waste (RCRA Subtitle D) | ___ yes ✓ no | Source (or) Special Nuclear Material |
| ___ no | RCRA Solid Waste (RCRA Subtitle C) | ✓ yes ___ no | Low Level Radioactive Waste (LLRW). |
| ___ no | RCRA Hazardous Waste | ___ yes ✓ no | Non-Radioactive waste. *** |

a Waste Code(s): F001, F002

*** Concurrence, Radiological Assessment- Date: _____

Re-evaluation Date: _____

Note: Waste stream must be re-evaluated by WCS if it is generated after the re-evaluation date listed above or when the stream/generating process changes.

**ERIAL MANAGEMENT**

| Form Criteria: | | 2. Container Specification: | 3. Reactivity Group Code(s): |
|---|---|---|---|
| ✓ no | Material contains free liquids. | Carbon steel | A |
| ✓ no | Material is a wastewater. (40 CFR 268.2(f)). | | |
| ___ no | Material meets the physical definition of debris (40 CFR 268.2(g)). | | |
| ✓ no | Waste meets NVO-325 Waste Acceptance Criteria (See NTS Waste Accepatance Criteria in MEF file). | | |

**STE CHARACTERIZATION APPROVAL**

[redacted] Signature: [redacted]

**TRIBUTION**

| | | | |
|---|---|---|---|
| enerator | M. Heinen MS76 | ___ HW/MW Handling and Disposition | |
| C&A | H. Knue | ___ LLW Handling and Disposal | |
| 'aste Treatment and Storage | M. Harper | ___ Waste Characterization Files | |
| ample Disposition (if sampled) | | ___ Other | |

# Item 8 - Other residues (Non-Hazardous Contact Waste) - MEF 1722

5/15/92

# FMPC MATERIAL EVALUATION FORM

MEF NO.: 1722

MEF REV. NO.: 007211

## SECTION I - MATERIAL GENERATOR

1. FMPC SRC: N/A
MTC: N/A
2. PLANT AND/OR BULDING NO.: Site wide
3. PROCESS AREA: Site wide

4. EQUIPMENT NAME(S):
5. MEF NO. DATE: 5-8-92
MEF REV. DATE:
6. MATERIAL PHYSICAL STATE: ☐ Liquid ☐ Gas ☐ Wet Solid (Sludge) ☑ Dry Solid

7. APPROXIMATE NET WEIGHT OF FULL CONTAINER? ☐ <100 lbs. ☐ 100 to 1000 lbs. ☐ >1000 lbs.
8. DOES MATERIAL CONSIST OF MORE THAN ONE SUBSTANCE? ☐ YES ☐ NO

9. IS MATERIAL A WASTE? ☑ YES ☐ NO
10. COMMON NAMES: Anti C's - worn at all locations on site - performing all work
11. CHEMICAL NAMES:

12. COMMON/CHEMICAL NAME SOURCE: ☐ Process Information ☐ MSDS ☐ Container Label ☐ FMPC Lot Code
OTHER:
13. SIMILAR MATERIAL NAME:
14. SIMILAR MATERIAL LOT CODE(S):

15. SUBSTANCES SUSPECTED:

| | | | | |
|---|---|---|---|---|
| | | ☐ Endrine | ☐ Methylene Chloride | ☐ TBP/Kerosene |
| ☐ Aerosols | ☐ Cresol | ☐ Heptachlor | ☐ Motor/Engine Oil | ☐ Tetrachloroethylene |
| ☐ Arsenic | ☐ m-Cresol | ☐ Hexachlorobenzene | ☐ Nitrobenzene | ☐ 1,1,1-Trichlorethane |
| ☐ Barium | ☐ o-Cresol | ☐ Hexachloroethane | ☐ Other Organics | ☐ 2,4,5-TP (Silvex) |
| ☐ Benzene | ☐ p-Cresol | ☐ Hexachloro-1,3-butadiene | ☐ Paint Stripper | ☐ 2,4,5-Trichlorophenol |
| ☐ Cadmium | ☐ 2,4-D | ☐ Hydraulic Oil | ☐ Paint Thinner/Mineral Spirits | ☐ 2,4,6-Trichlorophenol |
| ☐ Carbon Tetrachloride | ☐ Degreaser | ☐ Ink | ☐ Pentachlorophenol | ☐ Toxaphene |
| ☐ Chlordane | ☐ 1,4-Dichlorobenzene | ☐ Lead | ☐ Perchloroethylene | ☐ Trichloroethylene |
| ☐ Chlorobenzene | ☐ 1,2-Dichloroethane | ☐ Lindane | ☐ Pyridine | ☐ Unknown |
| ☐ Chloroform | ☐ 1,1-Dichloroethylene | ☐ Mercury | ☐ Selenium | ☐ Vinyl Chloride |
| ☐ Chromium | ☐ 2,4-Dintrotoluene | ☐ Methoxychlor | ☐ Silver | ☐ Xylene |
| ☐ Coolants | ☐ Enamel | ☐ Methyl ethyl ketone | ☐ Synthetic oil | ☐ Oil |

16. a. REASON FOR SUSPECTING ALL SUBSTANCES AND QUANTITY:

16. b. SOURCE FOR REASON AND QUANTITY: *(Attach MSDS if Available)*
☐ MSDS ☐ Prior Evaluation of Similar Material
☐ Personnel Interviews ☐ AEDO Log ☐ Container Label
What Material:
☐ Historical Records ☐ Physical Evidence ☐ Sump Report
☐ FMPC Lot Code ☐ Process Information ☐ Spill Database
SRC: MTC:

16. c. HEALTH AND SAFETY CONCERNS/ REQUIREMENTS:
16. d. SIGNATURE AND DATE: [signature] 5-13-92

17. HAS THE "FINGERPRINT" VISUAL INSPECTION BEEN COMPLETED? ☐ YES ☐ NO
18. NUMBER OF PHASES:
19. pH (IF KNOWN): *(Attach Lab Results)*
20. FLASH POINT (IF KNOWN): *(Attach Lab Results)*

21. HAS A PAINT FILTER TEST BEEN COMPLETED? ☐ YES ☐ NO

22. IS IT REACTIVE? ☐ YES ☐ NO EXPLAIN:

23. IS IT IGNITABLE? ☐ YES ☐ NO EXPLAIN:

24. OTHER INFORMATION: *(Example: Is the Material a Product or Waste?)*

25. ADDITIONAL SOURCES OF INFORMATION:

26. PRIMARY CONTACT INDIVIDUAL: Lori Hurst
EXTENSION: 8448
DATE COMPLETED: 5-8-92

NOTE: Form shall be completed using ink or a typewriter.
NOTE: Only WMCO employees shall sign this form.

*(Continued on Reverse)*

# FMPC
# MATERIAL EVALUATION FORM
*(Continued)*

MEF NO.: 1722 007211

MEF REV. NO.:

## SECTION II - FACILITY AND MATERIALS EVALUATION

TERIAL STE? ☑ YES ☐ NO

2. IS IT EXCLUDED UNDER 261.4(a)? ☐ YES ☑ NO

3. IS IT EXCLUDED UNDER 261.4 (b)? ☐ YES ☑ NO

4. DOES IT CONTAIN A LISTED WASTE AS PER 261 SUBPART D? ☐ k___ ☐ l___ ☐ p___ ☐ u___ ☑ not listed

IT EXHIBIT ANY LACTERISTICS AS 261 SUBPART C? ☐ YES ☑ NO

EXPLAIN: Per Attachment 1, no anti-C's from HWMUs (or SWMUs with known/suspect release) are included in this Sitewide determination, so no haz. waste suspected

6. IS IT A RQ HAZARDOUS SUBSTANCE? ☐ YES ☑ NO

POUNDS: —

SIFICATION AS A WASTE:
- ☐ RA Hazardous Waste
- urce Exempt
- n-RCRA Waste
- dioactive
- ☐ Needs Further Action (ie sampling)

EXPLAIN: (See Explanation in #5 & refer to Worksheets attached)

8. PRIMARY BASIS FOR CLASSIFICATION:
- ☑ Generator Information
- ☐ Prior material evaluation

WHAT MATERIAL? ____

LOT NUMBER: ____

9. IS IT SUBJECT TO LAND BAN RESTRICTIONS? ☑ NO ☐ YES Effective Date: ____

RIBUTE PER SECTION IV, ITEM 9.

R RMATION ICES USED:

ARY ACT IDUAL: L. Honigford

EXTENSION: x 6910

DATE COMPLETED: 6-25-92

MPLING IRED? ☐ YES ☒ NO

14. IS TRANSFER TO CONTROLLED HOLDING AREA REQUIRED? ☐ YES ☒ NO

DATE:

15. INFORMATION ACTION COMPLETION DATE:

TH AND TY CONCERNS IREMENTS:

16. b. SIGNATURE AND DATE

## SECTION III - ENVIRONMENTAL ENGINEERING

AMENDED STORAGE AINER MATERIAL ☐ Carbon Steel ☐ Stainless Steel ☐ Polyethylene

er: ____

2. APPLICABLE REACTIVITY GROUP CODES: NA- ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐ H

INFORMATION ES USED:

RY CT DUAL: J. Stoffer

EXTENSION: 6148

DATE COMPLETED: 8-20-92

## SECTION IV - TOXIC AND SOLID WASTE PROGRAMS

R D.O.T. SHIPPING NAME: see attachment

AZARD CLASS:

3. REQUIRED LABELS:

DENTIFICATION NO.: ☐ UN ☐ NA

SUFFIX:

5. EPA WASTE NO.:

ABLE REACTIVITY GROUP CODES: *(COPY FROM SECTION III, ITEM 2)*

7. FMPC SRC AND MTC *(COPY FROM SECTION I, ITEM 1)* SRC: MTC:

VISION TO MEF REQUIRED? ☐ YES ☐ NO

| UTION: | | |
|---|---|---|
| | MATERIAL GENERATOR: | DATE: |
| | ENVIRONMENTAL ENGINEERING: J. Stoffer | DATE: 8-20-92 |
| | ENVIRONMENTAL MONITORING: | DATE: |
| | MC&A: | DATE: |
| | IRS&T: | DATE: |
| | FACILITIES AND WAREHOUSING: | DATE: |
| | F&ME: | DATE: |
| | CONTROLLED HOLDING AREA: | DATE: |

ACT DUAL: Betty Brooks

EXTENSION: 9074

DATE COMPLETED: 7/21/92

EV. 6/4/91) Side 1.

000920

ATTACHMENT 1

MEF # 1722
REV # 1
8-3-92

This attachment clarifies the waste determination for "Anti-C's" (i.e., personal protective items) which are generated on a site-wide basis. For the purposes of this determination, only **disposable** personal protective items will be included in this waste determination. This determination does not include any "Anti-C's" which are meant to be cleaned and reused (e.g., cloth coveralls). Also excluded are any personal protective items used during an asbestos abatement project (these items are included under the Site-wide Determination for Asbestos).

Disposable personal protective items covered under this determination include:

- disposable paper suits (e.g., Tyvek, Saranex);
- disposable gloves (e.g., nitrile, surgical);
- disposable boot covers (e.g., "booties"); and
- respirator cartridges.

The waste materials described above will be considered personal protective wastes (solid wastes by Ohio's definition) and will be covered by this site-wide guidance and managed appropriately.

Personal protective items to be evaluated on a case-by-case basis include:

- personal protective waste stored in the same container with other waste materials (solid or liquid) of unknown origin;
- personal protective wastes generated within the physical limits of a hazardous waste management unit (HWMU) where hazardous wastes were managed;
- personal protective wastes generated within the physical limits of a solid waste management unit (SWMU) which has had a (known or suspected) routine and systematic release of hazardous wastes or hazardous materials; and
- personal protective wastes generated from the cleanup of a spill of a hazardous waste or hazardous substance.

Based on the case-by-case evaluation, the personal protective wastes in question will be included either in the site-wide determination waste stream or a new waste stream MEF will be developed to cover the contaminated personal protective wastes.

Due to the nature of the FEMP site activities, all personal protective wastes generated in radiologically controlled areas will be handled initially as low-level radioactive waste material. This classification can be changed based on radiation monitoring of the personal protective waste. Personal protective wastes from non-radiological areas should be segregated from those generated in radiologically controlled areas.

# Item 9 - Miscellaneous Solids from the Detrex Still - MEF No. 2668

Fernald Environmental Management Project
TERIAL EVALUATION FORM (MEF)

007211

*Requestor Section*



EQUESTOR/WASTE STREAM IDENTIFICATION

| | | |
|---|---|---|
| EF#: 2668 Original: ___X___ Revision: _____ | 2. Date Submitted: 01/05/95 | 3. Material Type and Source Code: 003 122 |
| questor Name: [redacted] | 5. Phone No.: 6634 | 6. Badge No./Co. Name: 8986/FERMCO |

ENERATION INFORMATION

| | | | |
|---|---|---|---|
| ovide best descriptive name for material: ellaneous solids from the Detrex Still ıre which includes stillbottom ue, piping, electric motor and ral housekeeping debris (paint roller) | 2. Does this material originate in a HWMU or SWMU? YES Unit Name/No. Detrex Still / #26 | | 3. Project, Activity, or Work Area generating waste (include CRU # if applicable). Detrex Still Closure HWMU #26 |
| ıte of first or expected generation: imate; X actual 09/94_____ | 5. Generation Quantity: 1 drum | 6. Generation frequency: ONCE | 7. Similar waste stream MEF# (or MTC/SRC): 2085, 2618, 2612 |

ovide a detailed description of what the material is:

llaneous solids from the Detrex Still Closure which includes stillbottom residue, piping, electric motor and general housekeeping debris (paint roller)

ovide a detailed description of how and where (specific origin) the waste stream is/will be generated, including any units which manage the material:

vaste was generated as part of the Detrex Still Closure at Plant 1 Building 1A

: Generator must attach all supporting documentation concerning items 8 and 9.] O additional narrative; O SOP;

SDS; O AEDO Log excerpt; O release report; O manufacturing specs; O Other: _____

Fernald Environmental Management Project
TERIAL EVALUATION FORM (MEF)

007211

*Requestor Section*



## HYSICAL CHARACTERISTICS

escribe **Color/Appearance**:

residue/gray piping

2. **Phase**:
- ☐ Liquid
- XX Solid debris/rubble
- ☐ Semi-solid/sludge
- ☐ Dry solid residue
- ☐ dry powder/dusty residue
- ☐ Other, specify:

3. Contains **Free Liquids**:
- ☐ yes
- XX no
- ☐ unknown

based on:
- O PFLT (results attached)
- O Visuals (results attached)
- XX Knowledge of waste

E: DO NOT SMELL THE MATERIAL]
te Any Incidental Odor:

Chlorinated solvent odor

5. **Layers**:
- XX single layer
- ☐ bi-layered
- ☐ multi-layered

6. **pH:** specify range or "unknown"

NA

☐ estimate; O documentation attached

7. **Flash Point:** Specify range or "unknown"

NA

☐ estimate; O documentation attached

## IATERIAL COMPOSITION

| omposition: | Min | Max: | circle |
|---|---|---|---|
| piping | 50 | 75 | (%) (or) ppm |
| stillbottom residue | 10 | 20 | (%) (or) ppm |
| Misc. housekeeping debris | 5 | 10 | (%) (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| | | | % (or) ppm |
| Total Maximum: | | 105 | (%) |

aximum must equal or exceed 100 %

X knowledge of the material

analytical data attached

2. Does the material contain any of the following?
- ☐ asbestos
- ☐ polychlorinated biphenyls (PCBs)
- ☐ infectious waste
- ☐ reactives (circle applicable items):
  - water reactive
  - explosive
  - cyanide/sulfide
  - shock sensitive
  - normally unstable
  - *exclude materials which normally produce hydrogen gas.*

XX toxicity characteristic metals (circle applicable items):
- arsenic
- barium
- cadmium
- chromium
- lead
- mercury
- nickel
- selenium
- silver
- thallium

{or}
- ☐ None of the above

{or}
- ☐ Unknown

Basis:
- XX knowledge of the material
- ☒ analytical data (attached)

adionuclide Contamination:
- material is **not contaminated** with radionuclides
- material contains incidental radionuclide contamination
- radionuclide bearing material/residue

Radionuclides of Concern if any:
- ☒ uranium
- ☐ thorium
- ☐ transuranics (TRU)

X knowledge of the material
- ☐ RMMA generated

analytical data attached
- ☐ Other: _____

4. Identify the container or repository type(s) in which the waste is (or is expected to be) managed on-site:
- XX drum
- ☐ box
- ☐ Sea/Land
- ☐ soil/debris pile
- ☐ small container (5 gal. or less)
- ☐ landfill, pit, or other land-based unit
- ☐ discharge to WWTS

Fernald Environmental Management Project
ΓERIAL EVALUATION FORM (MEF)

007211

*Evaluation Section*

**ASTE STREAM IDENTIFICATION**

| | | |
|---|---|---|
| F # 2668 : Revision No.: 0 | 2. Date Completed: 01/13/95 | 3. **Material Type / Source Code of original material:** Mat. 003 Src. 122 |
| [redacted] | 5. Phone No.: 8427 | 6. Badge No./Co. Name: 8850/FERMCO |

**ATERIAL REGULATORY STATUS** (check all that apply)

| ted: | Material Specific Regulation: | Regulated: | Material Specific Regulation: |
|---|---|---|---|
| s _X_ no | TSCA PCB Waste | ___ yes _X_ no | High Level Radioactive Waste |
| s _X_ no | Asbestos Containing-Waste Materials | ___ yes _X_ no | Transuranic (TRU) Waste |
| s _X_ no | OAC Infectious waste | ___ yes _X_ no | AEA 11(e)(2) Byproduct Material |
| s ___ no | OAC Solid Waste (RCRA Subtitle D) | ___ yes _X_ no | Source (or) Special Nuclear Material |
| s ___ no | RCRA Solid Waste (RCRA Subtitle C) | _X_ yes ___ no | Low Level Radioactive Waste (LLRW). |
| s ___ no | RCRA Hazardous Waste | ___ yes _X_ no | Non-Radioactive waste. *** |

ous Waste Code(s): _F001, F002, D007

*** Concurrence, Radiological Assessment- Date: _____

Re-evaluation Date: _____

Note: Waste stream must be re-evaluated by WCS if it is generated after the re-evaluation date listed above or when the stream/generating process changes.

**ATERIAL MANAGEMENT**

ste Form Criteria:

s _X_ no Material contains free liquids.

s _X_ no Material is a wastewater. (40 CFR 268.2(f)).

s _X_ no Material meets the physical definition of debris (40 CFR 268.2(g)).

s _X_ no Waste meets NVO-325 Waste Acceptance Criteria (See NTS Waste Accepatance Criteria in MEF file).

2. Container Specification: Carbon steel

3. Reactivity Group Code(s): A

**ASTE CHARACTERIZATION APPROVAL**

Linda Barlow

Signature: Linda Barlow

**STRIBUTION**

| | | | |
|---|---|---|---|
| Generator | Michael Heinen | _X_ HW/MW Handling and Disposition | John Witzeman |
| MC&A | Harold Knue | ___ LLW Handling and Disposal | |
| Waste Treatment and Storage | Matt Harper | _X_ Waste Characterization Files | |
| Sample Disposition (if sampled) | | ___ Other | |

# Item 10 - Regulated Asbestos Material - MEF 1340

007211

# ernald Environmental Management iect
## MATERIAL EVALUATION FORM (MEF)
*Evaluation Section*

**WASTE STREAM IDENTIFICATION**

| | | |
|---|---|---|
| MEF #: 1340 Revision No.: 1 | 2. Date Completed: December 6, 1993 | 3. Material Type / Source Code of original material: Mat. 028 Src. Sitewide |
| Evaluato [redacted] | 5. Phone No.: 9353 | 6. Badge No./Co. Name: 7150/FERMCO |

**MATERIAL REGULATORY STATUS** (check all that apply)

| lated: | Material Specific Regulation: |
|---|---|
| yes _X_ no | TSCA PCB Waste |
| _ yes __ no | Asbestos Containing-Waste Materials |
| yes _X_ no | OAC Infectious waste |
| _ yes ___ no | OAC Solid Waste (RCRA Subtitle D) |
| _ yes ___ no | RCRA Solid Waste (RCRA Subtitle C) |
| yes _X_ no | RCRA Hazardous Waste |

rdous Waste Code(s): N/A

| Regulated: | Material Specific Regulation: |
|---|---|
| ___ yes _X__ no | High Level Radioactive Waste |
| ___ yes _X_ no | Transuranic (TRU) Waste |
| ___ yes _X_ no | AEA 11(e)(2) Byproduct Material |
| _X__ yes ___ no | Low Level Radioactive Waste (LLRW). |
| ___ yes _X_ no | Non-Radioactive waste. *** |

*** Concurrence, Radiological Assessment- Date: _____

Re-evaluation Date: _____

Note: Waste stream must be re-evaluated by WCS if it is generated after the re-evaluation date listed above or when the stream/generating process changes.

**MATERIAL MANAGEMENT**

| Waste Form Criteria: | 2. Container Specification: | 3. Reactivity Group Code: |
|---|---|---|
| yes _X_ no Health & Safety Addendum Attached. (Note if marked yes do not manage this material without attached H&S Addendum. | To be determined at time of generation. | N/A |
| yes _X_ no Material contains free liquids. | | |
| yes ___no LLRW meets NVO-325 Waste Acceptance Criteria (See NTS Form in material evaluation file) | | |

| OT Shipping Description: | 5. DOT Labels: | 6. DOT Identification No.: |
|---|---|---|
| To be determined at the time of shipment. | To be assigned at time of shipment. | ☐ UN ☐ NA _____ (Suffix) |
| | | 7. DOT Hazard Class: |

**VASTE CHARACTERIZATION APPROVAL**

[redacted] Signat [redacted]

**DISTRIBUTION**

| | |
|---|---|
| Generator _____ | ___ Waste Reduction Program _____ |
| MC&A _____ | ___ Site Media Sampling _____ |
| Facilities and Warehousing _____ | ___ IS&H _____ (if H&S Addendum prior to characterization) |
| Sample Disposition (if sampled) _____ | |

000927

007211

**Fernald Site**
**MATERIAL EVALUATION FORM**
*(Continued)*

MEF NO.: 1340
MEF REV. NO.: 1

**SECTION II - FACILITY AND MATERIALS EVALUATION**

MATERIAL WASTE? ■ YES ☐ NO | 2. IS IT EXCLUDED UNDER 261.4(a)? ☐ YES ■ NO | 3. IS IT EXCLUDED UNDER 261.4 (b)? ☐ YES ■ NO | 4. DOES IT CONTAIN A LISTED WASTE AS PER 261 SUBPART D? ☐ k___ ☐ f___ ☐ p___ ☐ u___ ■ not listed

ES IT EXHIBIT ANY ARACTERISTICS AS R 261 SUBPART C? ☐ YES ■ NO | EXPLAIN:

6. IS IT A RO HAZARDOUS SUBSTANCE? ■ YES ☐ NO | POUNDS: 1 lb.

ASSIFICATION AS A WASTE.
RCRA Hazardous Waste
Source Exempt
Non-RCRA Waste
Radioactive
☐ Needs Further Action (ie sampling)
EXPLAIN:

8. PRIMARY BASIS FOR CLASSIFICATION:
■ Generator Information
☐ Prior material evaluation
WHAT MATERIAL?
LOT NUMBER:

9. IS IT SUBJECT TO LAND BAN RESTRICTIONS?
■ NO ☐ YES Effective Date:

STRIBUTE PER SECTION IV. ITEM 9.

THER FORMATION OURCES USED:

IMARY ONTACT DIVIDUAL: H. Roger Chiles | EXTENSION: 9353 | DATE COMPLETED: 12/6/94

SAMPLING QUIRED? ☐ YES ■ NO | 14. IS TRANSFER T CONTROLLED HOLDING AREA REQUIRED? ☐ YES ■ NO | DATE: | 15. INFORMATION ACTION COMPLETION DATE:

EALTH AND AFETY CONCERNS QUIREMENTS: | 16. b. SIGNATURE AND DATE

**SECTION III - ENVIRONMENTAL ENGINEERING**

COMMENDED STORAGE NTAINER MATERIAL ☐ Carbon Steel ☐ Stainless Steel ☐ Polyethylene
Other:

2. APPLICABLE REACTIVITY GROUP CODES: ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐ H

HER INFORMATION URCES USED:

IMARY NTACT DIVIDUAL: H. Roger Chiles | EXTENSION: 9353 | DATE COMPLETED: 12/6/94

**SECTION IV - TOXIC AND SOLID WASTE PROGRAMS**

OPER D.O.T. SHIPPING NAME: N/A

D.T. HAZARD CLASS: N/A | 3. REQUIRED LABELS: N/A

D.T. IDENTIFICATION NO.: ☐ UN ☐ NA | SUFFIX: N/A | 5. EPA WASTE NO.: N/A

PLICABLE REACTIVITY GROUP CODES: *(COPY FROM SECTION III. ITEM 2)* N/A | 7. FEMP SRC AND MTC *(COPY FROM SECTION I. ITEM 1)* | SRC: N/A | MTC: N/A

A REVISION TO MEF REQUIRED?
☐ YES ☐ NO

| STRIBUTION: | | | DATE. |
|---|---|---|---|
| | MATERIAL GENERATOR: | | DATE. |
| | ENVIRONMENTAL ENGINEERING: | J. Stoffer | DATE: |
| | ENVIRONMENTAL MONITORING: | | DATE: |
| | MC&A: | H. J. Knue | DATE: |
| | IRS&T: | R. L. Kruchan | DATE: |
| | FACILITIES AND WAREHOUSING: | B. S. Perkins | DATE. |
| | F&ME: | L. L. Honigford | DATE: |
| | CONTROLLED HOLDING AREA: | C. J. Stafford | DATE. |

RIMARY ONTACT DIVIDUAL: H. Roger Chiles | EXTENSION: 9353 | DATE COMPLETED: 12/6/93

000928

**Fernald Site**
**MATERIAL EVALUATION FORM**

MEF NO.: 00[illegible]

MEF REV. NO.: 1

**SECTION I - MATERIAL GENERATOR**

1. FEMP SRC: —
MTC: 028
2. PLANT AND/OR BULDING NO.: Sitewide
3. PROCESS AREA: Sitewide
4. EQUIPMENT NAME(S):
5. MEF NO. DATE:
MEF REV. DATE:
6. MATERIAL PHYSICAL STATE: ☐ Liquid ☐ Gas ☐ Wet Solid (Sludge) ■ Dry Solid
7. APPROXIMATE NET WEIGHT OF FULL CONTAINER? ☐ <100 lbs. ☐ 100 to 1000 lbs. ☐ >1000 lbs.
8. DOES MATERIAL CONSIST OF MORE THAN ONE SUBSTANCE? ■ YES ☐ NO
9. IS MATERIAL A WASTE? ■ YES ☐ NO
10. COMMON NAMES: Asbestos and Asbestos contaminated materials
11. CHEMICAL NAMES: None
12. COMMON/CHEMICAL NAME SOURCE: ■ Process Information ☐ MSDS ☐ Container Label ■ FEMP Lot Code
OTHER:
13. SIMILAR MATERIAL NAME: None
14. SIMILAR MATERIAL LOT CODE(S): None
15. SUBSTANCES SUSPECTED:

| | | | | |
|---|---|---|---|---|
| ☐ Aerosols | ☐ Cresol | ☐ Endrine | ☐ Methylene Chloride | ☐ TBP/Kerosene |
| ☐ Arsenic | ☐ m-Cresol | ☐ Heptachlor | ☐ Motor/Engine Oil | ☐ Tetrachloroethylene |
| ☐ Barium | ☐ o-Cresol | ☐ Hexachlorobenzene | ☐ Nitrobenzene | ☐ 1,1,1-Trichlorethane |
| ☐ Benzene | ☐ p-Cresol | ☐ Hexachloroethane | ☐ Other Organics | ☐ 2,4,5-TP (Silvex) |
| ☐ Cadmium | ☐ 2,4-D | ☐ Hexachloro-1,3-butadiene | ☐ Paint Stripper | ☐ 2,4,5-Trichlorophenol |
| ☐ Carbon Tetrachloride | ☐ Degreaser | ☐ Hydraulic Oil | ☐ Paint Thinner/Mineral Spirits | ☐ 2,4,6-Trichlorophenol |
| ☐ Chlordane | ☐ 1,4-Dichlorobenzene | ☐ Ink | ☐ Pentachlorophenol | ☐ Toxaphene |
| ☐ Chlorobenzene | ☐ 1,2-Dichloroethane | ☐ Lead | ☐ Perchloroethylene | ☐ Trichloroethylene |
| ☐ Chloroform | ☐ 1,1-Dichloroethylene | ☐ Lindane | ☐ Pyridine | ☐ Unknown |
| ☐ Chromium | ☐ 2,4-Dintrotoluene | ☐ Mercury | ☐ Selenium | ☐ Vinyl Chloride |
| ☐ Coolants | ☐ Enamel | ☐ Methoxychlor | ☐ Silver | ☐ Xylene |
| | | ☐ Methyl ethyl ketone | ☐ Synthetic oil | ☐ Oil |

16. a. REASON FOR SUSPECTING ALL SUBSTANCES AND QUANTITY:
16. b. SOURCE FOR REASON AND QUANTITY: *(Attach MSDS if Available)*
☐ MSDS ☐ Prior Evaluation of Similar Material
☐ Personnel Interviews ☐ AEDO Log ☐ Container Label
☐ Historical Records ☐ Physical Evidence ☐ Sump Report
■ FEMP Lot Code ■ Process Information ☐ Spill Database
What Material:
SRC: MTC:
16. c. HEALTH AND SAFETY CONCERNS/REQUIREMENTS: ASBESTOS WORK PERMIT REQUIRED WHEN HANDLING ASBESTOS, REFER TO MSDS FOR ADDITIONAL HEALTH AND SAFETY CONCERNS
16. d. SIGNATURE AND DATE: R B. Chaney 2/24/94
17. HAS THE "FINGERPRINT" VISUAL INSPECTION BEEN COMPLETED? ☐ YES ■ NO
18. NUMBER OF PHASES: N/A
19. pH (IF KNOWN): *(Attach Lab Results)* N/A
20. FLASH POINT (IF KNOWN): *(Attach Lab Results)* N/A
21. HAS A PAINT FILTER TEST BEEN COMPLETED? ☐ YES ■ NO N/A
22. IS IT REACTIVE? ☐ YES ■ NO EXPLAIN: N/A
23. IS IT IGNITABLE? ☐ YES ■ NO EXPLAIN: N/A
24. OTHER INFORMATION: *(Example: Is the Material a Product or Waste?)*
25. ADDITIONAL SOURCES OF INFORMATION: Phil Williams
26. PRIMARY CONTACT INDIVIDUAL: Roger Chiles
EXTENSION: 9353
DATE COMPLETED: 12/6/93

**NOTE:** Form shall be completed using ink or a typewriter.
**NOTE:** Only WEMCO employees shall sign this form.

*(Continued on Reverse)*



FS-F-3252 (REV. 10/10/91) Side 1

# ATTACHMENT G

## ENGINEER'S FIELD LOG

**Item 1 - Engineer/Field Representative Field Log**
**Item 2 - Engineer/Field Representative Daily Activity Reports**

ENSERCH ENVIRONMENTAL
DETREX STILL - HAZARDOUS WASTE MANAGEMENT UNIT No. 26
CERTIFICATION REPORT

# Item 1 - Independent Engineer (Designated Rep.) Field Log

8-22-99 10:30 a

Initial visit to Detrex Still with Mike Heiman and Al Combs

a) asbestos abatement completed with the exception of asbestos surrounding still tank itself. It is my understanding that CDWS is treating the Tank as a Mixed/TSCA waste, therefore the asbestos wrap can be left in place. All asbestos near or adjacent to equipment and items to be removed from the Tank have been removed. Mike Heiman has taken photos of before and after which are now in my possession and included in the P.E. Cert file. In my opinion the asbestos removal/abatement was well done.

b) Al Combs is applying tags to various parts of the still lines and equipment identifying what type of waste each is to be treated/characterized as. Those noted are as follows:

| | |
|---|---|
| 1. Water return pipes | Low Level Scrap (2 labels) |
| 2. Condenser drain line | Mixed Waste (2 labels) |
| 3. Water Supply line | Low Level Scrap |
| 4. Pump lines (Solvent) | Mixed Waste (2 labels) |
| 5. Support frame | Low Level Scrap |
| 6. Still Tank | Mixed/TSCA |
| 7. Steam supply Lines | Low Level Scrap |

c) elbow from top of tank to condenser had been removed at an earlier time. Tank opening were covered, and elbow was wrapped and tied to support frame under the tank.

d) All electrical and various plumbing lines have previously been disconnected and "tagged out" as part of safe shutdown.

e) no further entries 8-22-99 11:30a.

8-23-94 1) Not in field today... no field activities expected to start this week.

2) Received before and after asbestos polaroid pictures from Mike.

3) Received copies of the draft PSAP and PSHSSP from Mike. Currently am in the review process.

4) no further entries for 8-23-94. DEL

9-8-99 1) Project Walkdown 9:00a. Unable to attend. Did not have steel toed shoes. Was not aware of this requirement. Per later discussion with Mike Heiner, only the procedure described in "Safe Shutdown Implementation Task Description" was discussed. No changes were made. D.E.Z.

Mike.

2) No further entries 9-8-99. DEZ.

9-12-94 1) Removal of outside pipes & steam lines.
a) cutting with band saw and sawzall.

b) 4.5 gal of "chilling" water from outside jacket of condenser was found in system. Most was collected in 1.5 gal bucket, some spilled onto, absorbed with absorb. pads

c) all material removed is low level scrap. Material removed was the condenser water supply lines and steam supply lines. Material placed in 55 gal open top

2) Evidently work started about 12:30 or so. I called M. Hiemer @ 1:15, and Mike hadn't heard yet. I went on out to the FTF and was back @ 1:45 p.m. Mike had gotten word they were starting. Arrived at Detrex @ 2 pm. Most of the work was done for today. Inspection of piping in drum is consistent with information provided. Only LLS scrap piping was removed today.

3) The "chilling water" present in the condenser jacket was questioned as to how to manage it. The CPID states on pge 2-11 that "liquids collected in catch pans and all other demolition waste created by dismantling activities will be managed according to the procedures described in Section 2.2. for mixed wastes pending characterization and final disposition". Mike called _____ and it was decided to include this aqueous waste in the ~~decon~~ DE.M liquid decontamination wastes. These wastes will be managed as mixed waste until it

field characterization (CPD pg 2-7).

4) Left Deltex area with MH. @ 2:40 pm. No further activities scheduled today.

5) No further entries for 9-12-89. D.E.H.

9-13-99 1) 8:05 a crew dressing out... will finish rest of lines today... maybe get condenser unit removed.

2) Discussed with MH. the use of WMB for liquids as specified in SMS PSAP. The WMB is a temporary decon solution "catch basin" so to speak. Also due to union rules SMS can't sample drums, so if material is in another type of container, they can. Also serves in part as "ahead spill prevention tool".

3) Supplies low at decon point... out of medium respirators & hoods. Crew is trying to scrounge up some now.

4) Crew Members

| Name: | Function: |
|---|---|
| a) Robin Brown | millwright |
| b) Tony Barnes | millwright |
| c) R. ~~[illegible]~~ (R. ZANDERS) | RAD TECH |
| d) E. McFalan | SUPERVISOR |

5) 8:45 a Crew proceeding with balance of lines using port band saw.

a) Condenser jacket drain line cut & removed, and size reduced.

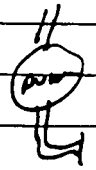
6) IH - Todd.

7) Crew cutting hay waste line (left line for solvent) 8:55 a line removed from unit. Size reduced, placed in Hazardous Drum.

37 ppm on Gibo into tank

0 ppm on LVM at self.

8) Dribble of liquid from ~~output~~ (inlet) side of pump, when line cut. (bottom line) DEM




assume to pump from bottom up.

9) Solvent drain line from Condenser is Empty!! (Not a problem) line removed and downsized. Placed in Hay. Water drum. (mixed). Green in color.

10) Drums temporarily labeled for HW & Mixed respectively.

11) Strong Solvent smell now present 9:20a I H checking with O.I.D. (From slight drippage from pump & elbow in fill side of tank. 90 ppm in elbow.

12) Will be air line when open tank. Condenser can still be removed in F.F. resp. Equipment for air line being secured by Supervisor. Crew not ready or Equipment found at 1pm as scheduled.

13) As of 2:30 still not secured.. No further activities today. Informed by Mike H. that work will resume again tomorrow at 9 am.

14) No further entries for 9-13-94 D.C.M.

9-14-94 → RSO was not able to get equipment & crew was reassigned to different job. Worked trip out to Plant 1. 9:05a

→ Unknown as to when project will restart.

→ In order for RSO to keep to millwrights they have they are being placed on another job within Plant 1. The job involves the dust collectors and the area of the detrex is expected to be included in the resuspending airborne contaminate area/zone for the collected job. No further work on Detrex is expected this week.

→ No further entries 9-14-94 DEM.

9-15-94 1) RSO has had a change of plan. Supposed to re-start on Detrex Lake this morning. RSO still needs to get air line system in place. Will see what happens. Waiting since 12.00p
Bill Blabender - ! - maintaining Radio Contact

2) 1:10p Crew attempting to unbolt unit from floor. Condenser unit removed while crew was on dust collector project, and layed on ground. Having to cut two of them with Sawzall due to corrosion

3) Additional crew - Clean Bruce assistant.

4) 1:39 Unit lifted & turned toward North. Lots of room to work and good general visability from window. It will be hard to see inside, but due to building layout this is all that can be done. If they (IH) require air line to clean out tank... it may be a problem for me to inspect since I'm not FEMCO trained on SCBA or Airline, although I have been trained for their use with Haz. Mat 1910.120, (Non-FEMP).

5) Sampling of tank contents scedualled for tomorrow at 9 am. Will see if it stays.

6) No further entries 9-15-94 D.E.M.

9-16-94 9:02 IH, Millwrites all ready to go. Samplers are not here yet. Haven't heard anything about them. F&S took back their SCBA's last night so they need to be brought back. Also IH informed me that the "6 pack" ~~and~~ cascade system needs to be gone with by 1 or 2 today to get recharged for the UNH project. Samplers best show up, although they have been notified at least 4 other times this project would start at a certain time/day and then didn't for what ever the reason was those days. Suspect a little ~~effect~~ of the "cryed wolf syndrome".

9:07 Mike Heiman not present yet either. Is now 9:08.
9:10 Sampling crew showed & is being briefed by IH and Rad Safety.
9:20 Crew dressing out. I hope I'm able to see well enough from this window.

9:40 Crew on air line, placing "glove" bag bottom of bag under north end of tank, under steam body. Bag taped to tank. Top of bag attach to top of tank, sealed all the way around end of tank.

attach bolts for steam unit appear to have broken loose easily. All Bolts removed 10:15 a. Broke loose @ 10:20 after much persuation, 2/3 removed 10:25.
10:35 Steam unit removed. Sampling crew beginning sampling activities. - No liquid reported at all. Solids residue only.

(Attach to circle with three pot gloves on)

10:44 Sampling crew says "sludge" is too hard to sample as intended. Per Mikes instruction, SMS is to get as much as they can. Was described as tary and substance.

10:50 SMS member ran out of air (warning bell). Todd re-survey the area & down graded to FF resp since reading in breathing zone were only 12 ppm or so. SMS reentered in FF resp & finished sample aquisition.

11:03 SMS finished sampling. And left area.

9:08

1:25 Inspected Inside of tank in Full PPE. w/ FF. 1/8 - 1/4" crust with center a glassified type dark brown / black dry shellac type material.

1:40 Crew started working on tank again. opening in side scalled off with tape. Taped glass level indicator, wrapping tank in Mr. antitex. Will cut hole in and to clean out interior.

2:00 Tank wrapped. Hole cut.

2:05 Scrapping inside - Very tough residue, hard to scrap.

2:45 Crew gave up on residue. Very Hot today to be in full antics & FF w/ hood.

3:00 All three Contract Point. No further entries 8-16-94 D.E.H.

6-19-99 1) CPW's discussing how much effort to put into cleaning out the residue. Received e-mail 10:02 a stating they had started work & were going to attempt to get more. RSO is supposed to get more appropriate tools. Headed out to Dettrey and Through discussion with Al Combs no work has been done this morning and none is expected until after lunch.

2) 1:05 crew was already working. Using long handled putty knives are attempting to remove the residue. 1:15 Crew says it is too hard to get with putty knife on extension pole. Didn't get much more than had gotten on friday. This is as good as can be gotten with available tools. Noteworthy that the opening they are working through is also a limiting factor. Will do a final inspection tomorrow when they are scheduled to continue with demolition work plan.

3) 1:25 Crew finish with last of the ~~scraper~~ DEM scraping.
Mike Fair
Charles Miller
Sef Gabrial.
Tim Flannery
Tim Feltman - Sayer
Zanders - Rad S.
Todd Elliott - IH.

4) Discussion with crew members indicate little to no change since Fridays inspection. Crew removed an estimated 1 pint more of residue. Still dem

as being approximately ½ done along bottom. Crew has given up. As CPID calls for the tank to be cleaned out to a "clean debris surface" ?? and this will not be possible a deviation to CPID will be noted. (May only say to be cleaned, a clean debris surface subject to treatment & tank would not pass land band (LDR) anyway. The tank will be managed as Mixed/TSCA. Potential treatability is unknown.

5) No further entries 9-19-94 DEH.

9-20-94 1) 8:15a crew planning & dressing out. Will finish wrapping tank, cut legs & containerize

2) Still Tank & Steam lines in one WMB #
Framing & Condenser in another WMB # , to be taken to D&D for cleaning to clean debris surface.

3) 8:30 crew entered area.
· Policing area - picking up cables, etc to prepare for use of "hand stacker"

4) 8:35 Steam unit inserted back into tank. A few bolts replaced to secure unit in tank (tightened).

Mant.
Milburides, Robin,
Operator for Hand stacker
} see pg 15

5) 8:43 Prepping WMB for Tank. (Two pallets & bags absorbent. (dicolite)

6) 8:43 - Crew dragging unit out to center aile
- lifted unit from bottom & position for overhead lift

7) 8:51 - attaching rigging. Running too long... can't get high enough.

6) 8:59 Crew starting to cut support frames.

Vaughn Ryder } operators
Kelly Blaine }

Robin } millwrights
Tony Barnes }

Tom Knowa Cenuwa Maint Super

(6½ x 4½ x 3)

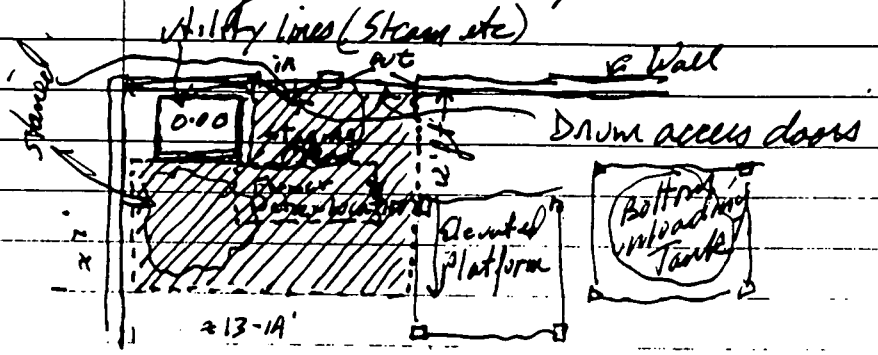
7) 9:28 Tank cut from supports, attempting to lower into WMB. Slightly long, had to cut some piping on it. 9:40 in Box # 653808

10) 9:47 WMB #2 for structure and condenser reported to contain water (2") 653822 W124-120-V003-4393.
~~653898~~

11) 9:54 all done with tank & supports. Crew leaving clothes area.

12) Still to do: 1) clean up balance of contact waste. Will be treated as mixed.
2) Mark and label all drums & containers.
3) Need to inventory all containers after marking.
4) Steam clean framing & condenser - sample decon solution.
5) Scabble floor & sample.

9-22-94 1) Inspected floor area for scabbling area
8:15a to be delineated. Area had previously been
marked by M.H. but it did not include
the staging area for the drum switch out
between Detrex and wall where "drum"
access swinging doors were. This area is
part of the Detrex operations.




= area to be scabbled. Only slight amount of staining in area as a whole. Area just D.E.M. between indoor and stair has much dirt & buildup. Other area spotted.

(Spotted areas marked above with * General staining/
Scaled area outlined with ⬭.)

2) Left detrex area approx 9:30am. Back to office.

3) Scabbling started ≈ 10:00a. "Alternate pass
approach suggested, but understand they didn't
use it. Question raised by crew about 0.6 cm.
Explained it was required by regulation and the
C.P.D. Crew planning to take it to 0.6 cm now.

4) Pre-scabbling surface elevation survey taken by SMS. SMS will also perform a post-scabbling survey. Results will dictate when 0.6cm has been achieved.

5) Crew using a thin coat of chaulk to indicate where 1st pass is relative to 2nd pass. It will work but they've made it harder for themselves.

6) No further entries 9-22-94 D.E.M.

9-23-94 1) RSO (Kelly) continuing to scabble concrete. Estimate that only 1/16 to 1/8 inches is done in most areas. A few areas maybe slightly deeper. SMS survey crew is scheduled to do a 2nd any survey on monday. This readings will indicate how far along they are.

2) Crew using Pentec "Vac Pac". Compressed air from portable compressor "Sullair". Vac Pac is being used to collect scabbled material in drums during operation. Drum is not marked as yet.

3) No further entries 9-23-94

-26-94 1) SMS sampling sampled scabbled concrete. Grab samples from drum. 9:15 a
D.E.M.

2) SMS survey crew indicates only an average 0.015 of an inch. Scabbling to continue. 9:10 a

10-26-94 Supplemental: further... believe he meant 0.015 ft... due to report,
D.E.M.

3) Drum still not labled - mentioned to Mike H. He is looking into it. Drum to be re-connected to "Vac Pac" & continue to fill. Drum is ⅔ full by estimate of sampling effort.

4) Scabbling method questionable. CRU3 looking into alternative method.

5) No further entries 9-26-94

9-27-94 No entries. DEM.

9-28-94 1) RSO to switch to a rotary hammer, instead of small scabbler. Unknown when will start.

2) D&D facility to clean support framing and condenser unit 9-29-94 1st thing in am.

3) No further entries 9-28-94. D.E.M.

Supplemental Entries 10-3-94
Recieved Information from Mike Hemon concerning Lot Code. Lot codes were assigned and stenciled on the containers and drums 9-28-94.

a) Still Tank (WMB 653808)
Lot W124-120-V003-4393 #1

b) Condenser & Frame Support Members (WMB 653822)
Lot W124-120-V003-4393 #2

c) RCRA (Piping & Pump)
(55 O.T.) 3 drums
Lot R124-120-V003-9393 #1, 2 & 3

d) HR (55gal O.T.) (Supply Piping)
Lot W124-120-V003-6393 #1

(a-d) entered 10-3-94, D.E.M.

532-[redacted] 0176

Sam 441



29-94 1) Decon of Support Structure and Condenser to be done today. D&D super Ray Douglas. Work Crew: _____

8:22 2) Ray instructing crew to set up. Initial were going to put rinsate directly into drums. Informed Ray & verified with Mike Heiner that it is temporarily to be put in WMB until sampled. SMS crew may or may not be notified today... will check with Mike.

SMS to sample between 9-9:30a

3) 8:45 WMB positioned - cover removed. 2-3 inches of rain water. This water can't be left in WMB, or be associated with the rinsate. Another WMB was brought in Decon to be used to decon in. 740341 Decon WMB is clean. No foreign contaminated visually observable. water from 658822 pumped into 55 bung type drum.

4) 10:00 Condenser unit positioned near clean WMB and began to steam clean. Unit separated in 2nd End Cap and 1 center tube structure. All internal surfaces look good. External surfaces cleaned up well. No problem passing 5% clean debris surface rule. All internal and external surface treated with "chemical extraction".

5) Soaps - TOXO "TEX AC" Alkaline Powder
Batch Code S052444-1

6) 10:45 positioned frame unit over clean WMB and proceeded to clean. Frame support painted paint not removed. Lead issue. Will be resolved later. As far as cleaning is concern unit is ~~[illegible]~~ less than 5%

7) 11:25 finish with support. 6" of water (decon) in WMB.

8) 12:25 SMS sampling crew (Mike & sampling decon solution. Standard SMS protocols enabled. Crew using dipper instead of coliwasa due to limited depth in WMB. (6" max).

9) Left D & D 1:15 pm. Unsure what they are going to do. Rainwater is slated to be pumped into same drums as decon solution. Decon solution is sampled separately. Rainwater will dilute. Dilution of waste stream is not permitted although in this case will not make a difference.

10) No further entries 9-26-94 DEM.

Supplemental Entry 10-3-94 DEM.
Decon water pumped later in day on 9-29-94. Number of drums & lot code unknown. Mike Heuer will provide. He did not know as of 3:30p 10-3-94. DEM

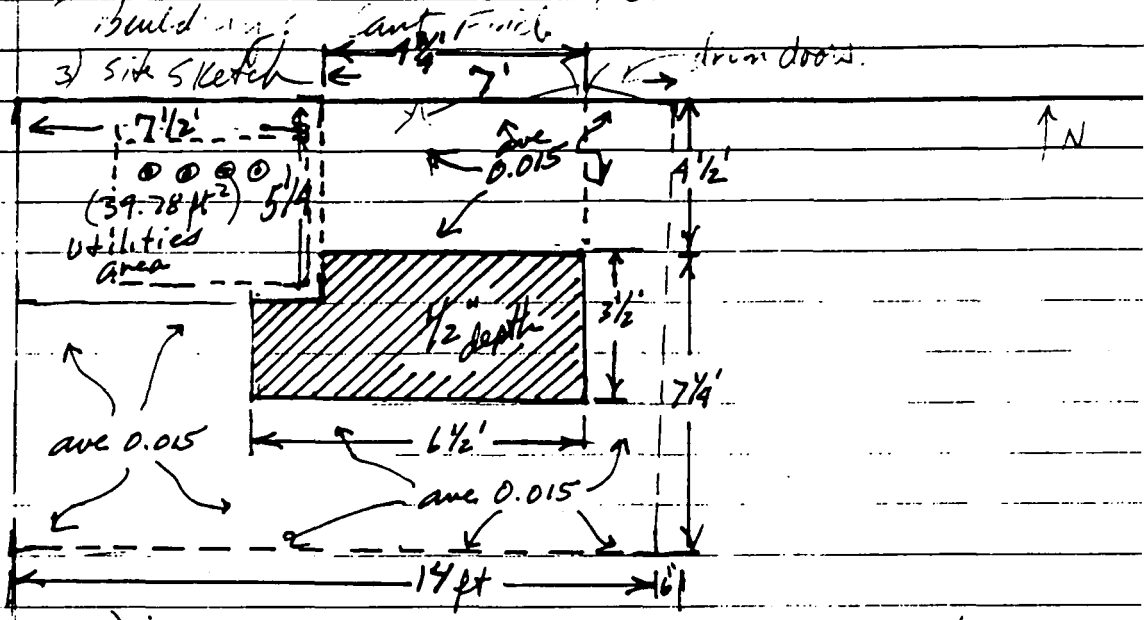
1) Detress closure activities completed with the exception of receiving validated laboratory results. No further entries for project expected. 10-10-94

9-30-99 No Field activities.

10-3-99 1) Inspect Scabbed Floor. Area firmly under deck [illegible] "hammer chipped" to approx 1/2" Balance [illegible] was initially scabbed with rotary [illegible] to ave depth of 0.015

2) ~~Waste~~ Mgt. - Drums & Containers [illegible] in building [illegible] Cant Find

3) Site Sketch




3a Distances measured with work shoes. Shoes w/ covers are almost exactly 12" (11 7/8"). (Fractional are estimates [illegible]

Total Scabbled area 124.75 ft squared. 0.015
HWMU Scabbled area 22.75 ft squared (≈1/2 inches deep)

5) No further entries 10-3-99

# Item 2 - Independent Engineer (Designated Rep.) Daily Activity Reports

ENSERCH ENVIRONMENTAL CORPORATION

# P.E. CERTIFICATION FOR CLOSURE CRITICAL ITEMS ACTIVITY REPORT

| | | | | |
|---|---|---|---|---|
| LIENT: FERMCO | TASK No. 42 | Date: 9-23-94 | Report No. 2 | Page 1 of 1 |
| ROUP: CRU-3, Mike Heinen | PROJECT: Detrex Still (HWMU #26) Closure | | | |
| OCATION: Fernald, OH | DESIGNATED REP. : David E. Mikkelson | | CERTIFYING P.E. : David T. Johnson | |

RITICAL ACTIVITY: None

| EATHER: (Time) | | TEMP (DEG F): | | ACTIVITIES AFFECTED BY WEATHER: |
|---|---|---|---|---|
| N/A | CLEAR | BELOW 0 | | 1. N/A |
| | OVERCAST | 0 – 32 | | 2. |
| | LIGHT RAIN | 33 – 50 | | 3. |
| | HEAVY RAIN | 51 – 70 | | 4. |
| | SNOW | 71 – 85 | | 5. |
| | WINDY | 86 – 100 | | 6. |
| | | ABOVE 100 | | 7. |

No further entries D.E.M.

| ORK FORCE: | Number | EQUIPMENT: | No. | In Use: |
|---|---|---|---|---|
| None | | None | | |

No further entries D.E.M.

No further entries D.E.M.

| EFICIENCIES: | ACTION: |
|---|---|
| N/A | |

No further entries D.E.M.

| CTIVITIES PERFORMED: | IN COMPLIANCE: |
|---|---|
| No field activities today... Informed by Mike Heinen this morning than none are expected this week. Still haven't resolved the CMS problems and waiting on review cycle. | N/A |
| Recieved copy of Draft PSAP & PSHSP from Mike for review (unofficial). | N/A |
| Recieved copy of "before and after" pictures (polaroid) from Mike for the asbestos abatement. | N/A |
| No further entries 9-23-94 | N/A |

gnature: David E. Mikkelson
David E. Mikkelson

Title: Environmental Scientist

Phone: 860-0708

000959

# ENSERCH ENVIRONMENTAL CORPORATION

# P.E. CERTIFICATION FOR CLOSURE CRITICAL ITEMS ACTIVITY REPORT

| | | | |
|---|---|---|---|
| CLIENT: FERMCO | TASK No. 42 | Date: 8-22-94 | Report No. 1 | Page 1 of 1 |
| GROUP: CRU-3, Mike Heinen | PROJECT: Detrex Still (HWMU #26) Closure | | |
| LOCATION: Fernald, OH | DESIGNATED REP. : David E. Mikkelson | CERTIFYING P.E. : David T. Johnson | |

CRITICAL ACTIVITY: Post Asbestos removal inspection:

| WEATHER: (Time) | | TEMP (DEG F): | | ACTIVITIES AFFECTED BY WEATHER: |
|---|---|---|---|---|
| N/A | CLEAR | BELOW 0 | | 1. None: |
| | OVERCAST | 0 – 32 | | 2. |
| | LIGHT RAIN | 33 – 50 | | 3. |
| | HEAVY RAIN | 51 – 70 | | 4. |
| | SNOW | 71 – 85 | | 5. |
| | WINDY | 86 – 100 | | 6. |
| | | ABOVE 100 | | 7. |

No further entries D.E.M.

| WORK FORCE: | Number | EQUIPMENT: | No. | In Use: |
|---|---|---|---|---|
| Mike Heinen, CRU-3 Engineer | 1 | None: | | |
| Al | 1 | | | |

No further entries D.E.M.

No further entries D.E.M.

| DEFICIENCIES: | ACTION: |
|---|---|
| None: | |

No further entries D.E.M.

| ACTIVITIES PERFORMED: | IN COMPLIANCE: |
|---|---|
| 1) Inspected asbestos removal (post). All asbestos and residuals removed from piping and other structures except asbestos wrap around rotain still tank. Still tank is to treated as mixed-TSCA waste and contaminated accordingly. Al attached tables to the various waste types assigned to the equipment & piping to be removed. | Yes |
| 2) Mike took several post asbestos photographs. (Mike to provide me copies of before and after asbestos removal. | N/A |
| 3) Brief discussion with Dave Johnson concerning proper disposal of mixed/TSCA waste (Tank). | N/A |
| 4) No further entries. | |

| Signature: | Title: | Phone: |
|---|---|---|
| David E. Mikkelson | Environmental Scientist | 860-0708 |

ENSERCH ENVIRONMENTAL CORPORATION

# P.E. CERTIFICATION FOR CLOSURE CRITICAL ITEMS ACTIVITY REPORT

| | | | |
|---|---|---|---|
| LIENT: FERMCO | TASK No. 42 | Date: 9-13-94 | Report No. 4. Page 1 of 1 |
| ROUP: CRU-3, Mike Heinen | PROJECT: Detrex Still (HWMU #26) Closure | | |
| OCATION: Fernald, OH | DESIGNATED REP. : David E. Mikkelson | | CERTIFYING P.E. : David T. Johnson |

RITICAL ACTIVITY: Line removal.

| EATHER: (Time) | | TEMP (DEG F): | | ACTIVITIES AFFECTED BY WEATHER: |
|---|---|---|---|---|
| CLEAR | | BELOW 0 | | 1. Not Applicable |
| OVERCAST | | 0 – 32 | | 2. |
| LIGHT RAIN | | 33 – 50 | | 3. |
| HEAVY RAIN | | 51 – 70 | | 4. |
| SNOW | | 71 – 85 | | 5. |
| WINDY | | 86 – 100 | | 6. |
| | | ABOVE 100 | | 7. |

no further entries D.E.M.

| ORK FORCE: | Number | EQUIPMENT: | No. | In Use: |
|---|---|---|---|---|
| Robin Brown - Millwright | 1 | Saws All | 1 | no |
| Tony Barnes - Millwright | 1 | Portable Band Saw | 1 | yes |
| E. McFarland - Millwright Supervisor | 1 | Various IH monitoring Equipment. | | |
| R. Zanders - Rad Tech. | 1 | · Area Breathing Zone | 2 | yes |
| Mike Heinen - CRU3 Eng. | 1 | · PID | 1 | yes |
| Al Combs - RSO Supervisor | 1 | | | |
| Todd Elliot - IH Tech. | 1 | | | |

no further entries D.E.M.

no further entries D.E.M.

| EFICIENCIES: | ACTION: |
|---|---|
| None: | |

no further entries D.E.M.

| CTIVITIES PERFORMED: | IN COMPLIANCE: |
|---|---|
| ) Millwrites finished removing and downsizing the rest of LLW piping, and containerized. 8:45a | yes |
| ) Millwrites started on Hog Material (Mixed) Pump and Solvent lines. PID on removed material (lines) 0 ppm. PID on elbow into side of Still unit 37 ppm. All piping except that above pump removed. | yes |
| Drums Temporarily marked for LLW & Mixed waste respectively. | Temporarily |
| Solvent smell evendent by 9:20a. IH checked breathing zone. Still OK for Full Face, but ordered will need air line equipment to open tank. | yes per IH |
| RSO super (Al Combs) to secure air line equipment. Not secured. No work completed this afternoon. Scheduled to start 9 am tomorrow. | N/A |
| No further entries. D.E.M. | |

| | | |
|---|---|---|
| ignature: David E. Mikkelson | Title: Environmental Scientist | Phone: 860-0708 |
| David E. Mikkelson | | |

000961

# ENSERCH ENVIRONMENTAL CORPORATION

# P.E. CERTIFICATION FOR CLOSURE CRITICAL ITEMS ACTIVITY REPORT

| | | | | |
|---|---|---|---|---|
| CLIENT: FERMCO | TASK No. 42 | Date: 9-12-94 | Report No. 3 | Page 1 of 1 |
| GROUP: CRU-3, Mike Heinen | PROJECT: Detrex Still (HWMU #26) Closure | | | |
| LOCATION: Fernald, OH | DESIGNATED REP. : David E. Mikkelson | | CERTIFYING P.E. : David T. Johnson | |

CRITICAL ACTIVITY:

| WEATHER: (Time) | | TEMP (DEG F): | | ACTIVITIES AFFECTED BY WEATHER: |
|---|---|---|---|---|
| CLEAR | | BELOW 0 | | 1. Not Applicable, Indoor activity. |
| OVERCAST | | 0 - 32 | | 2. |
| LIGHT RAIN | | 33 - 50 | | 3. |
| HEAVY RAIN | | 51 - 70 | | 4. |
| SNOW | | 71 - 85 | | 5. |
| WINDY | | 86 - 100 | | 6. |
| | | ABOVE 100 | | 7. |

| WORK FORCE: | Number | EQUIPMENT: | No. | In Use: |
|---|---|---|---|---|
| RSO - Millwrights | 1 | Portable Saws-all" | 1 | Yes |
| RSO - Safe Shutdown | 2 | Portable "Band saw" | 1 | Yes |
| (unable to get names today) | | | | |

| DEFICIENCIES: | ACTION: |
|---|---|
| None; (potential if liquid waste from water supply line & cooling jacket of condenser is not handled properly) (It has been determined to include this liquid into the decon liquid waste stream. I am checking in to this.) | |

| ACTIVITIES PERFORMED: | IN COMPLIANCE: |
|---|---|
| 1) Millwrite and Safe Shutdown personnel removed Low Level Scraps piping from condenser & still today. All material had been previously labled. Piping was cut with a "Saws-all" and "portable bandsaw". | Yes |
| 2) Liquids (old clean supply water) was present in cooling jacket of Condenser and vapor elevations of incoming piping (up to level of pair discovered from building water supply). Liquids were collected in pail. Splash was absorbed with absorbant pads. | Yes - if managed correctly. |
| 3) No further activities for 9-12-94. Crew scheduled to start again in morning. | N/A |
| 4) No further entries for 9-12-94. | N/A |

| Signature: | Title: | Phone: |
|---|---|---|
| David E. Mikkelson | Environmental Scientist | 860-0708 |

# ENSERCH ENVIRONMENTAL CORPORATION

# P.E. CERTIFICATION FOR CLOSURE CRITICAL ITEMS ACTIVITY REPORT

| | | | |
|---|---|---|---|
| JENT: FERMCO | TASK No. 42 | Date: 9-15-94 | Report No. 6 | Page 1 of 1 |
| ROUP: CRU-3, Mike Heinen | PROJECT: Detrex Still (HWMU #26) Closure | | |
| OCATION: Fernald, OH | DESIGNATED REP. : David E. Mikkelson | CERTIFYING P.E. : David T. Johnson | |

RITICAL ACTIVITY:

| EATHER: (Time) | | TEMP (DEG F): | | ACTIVITIES AFFECTED BY WEATHER: |
|---|---|---|---|---|
| CLEAR | | BELOW 0 | | 1. N/A |
| OVERCAST | | 0 – 32 | | 2. |
| LIGHT RAIN | | 33 – 50 | | 3. |
| HEAVY RAIN | | 51 – 70 | | 4. |
| SNOW | | 71 – 85 | | 5. |
| WINDY | | 86 – 100 | | 6. |
| | | ABOVE 100 | | 7. |

No further entries D.E.M.

| ORK FORCE: | Number | EQUIPMENT: | No. | In Use: |
|---|---|---|---|---|
| g changes. Original work | Total 8 | No changes, except fork lift | | Yes |
| ice back on Detrex job, with | | & combilong. | | |
| additional assistant, Glenn Brice. | | | | |

No further entries D.E.M.

No further entries D.E.M.

| EFICIENCIES: | ACTION: |
|---|---|
| None. | |

No further entries D.E.M.

| CTIVITIES PERFORMED: | IN COMPLIANCE: |
|---|---|
| Millwrights removed securing bolts from frame to floor & RSO fork truck lifted still & framing. Moved the still South ≈ 5' & turned the still such that the steam line attach plate is facing north. Overall visability for observation is good (located outside window on north side of building.) | Yes |
| Condenser was removed (prior to relocation) and set to west end of room for temporary storage until wmbs are in place. (At which time the still & other related items such as the condenser, scheduled for decon will be placed. | Yes |
| No other action on still today. Steam lines & tank content sampling scheduled for 8 am, 9-16-94. | N/A |
| No further entries. D.E.M. | |

| Signature: | Title: | Phone: |
|---|---|---|
| David E. Mikkelson | Environmental Scientist | 860-0708 |

000963

# ENSERCH ENVIRONMENTAL CORPORATION

# P.E. CERTIFICATION FOR CLOSURE CRITICAL ITEMS ACTIVITY REPORT

| | | | | |
|---|---|---|---|---|
| CLIENT: FERMCO | TASK No. 42 | Date: 9-14-99 | Report No. 5 | Page 1 of 1 |
| GROUP: CRU-3, Mike Heinen | PROJECT: Detrex Still (HWMU #26) Closure | | | |
| LOCATION: Fernald, OH | DESIGNATED REP. : David E. Mikkelson | | CERTIFYING P.E. : David T. Johnson | |

CRITICAL ACTIVITY:

| WEATHER: (Time) | | TEMP (DEG F): | | ACTIVITIES AFFECTED BY WEATHER: |
|---|---|---|---|---|
| CLEAR | | BELOW 0 | | 1. N/A |
| OVERCAST | | 0 - 32 | | 2. |
| LIGHT RAIN | | 33 - 50 | | 3. |
| HEAVY RAIN | | 51 - 70 | | 4. |
| SNOW | | 71 - 85 | | 5. |
| WINDY | | 86 - 100 | | 6. |
| | | ABOVE 100 | | 7. |

no further entries D.E.M.

| WORK FORCE: | Number | EQUIPMENT: | No. | In Use: |
|---|---|---|---|---|
| No changes | | No changes | | |

no further entries D.E.M.

no further entries D.E.M.

| DEFICIENCIES: | ACTION: |
|---|---|
| None. | |

no further entries D.E.M.

| ACTIVITIES PERFORMED: | IN COMPLIANCE: |
|---|---|
| 1) Detrex activities had been scheduled to start 9 am this morning but DSO had not gotten equipment (air system as needed). Work crew reassigned to Dust Collector job w/in Plant 1. The area effected includes the detrex and area is F.F. segregated to be in the building. | N/A |
| 2) No Detrex work performed today. | |
| 3) No further entries D.E.M. | |

Signature: David E. Mikkelson

Title: Environmental Scientist

Phone: 860-0708

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CORPORATION

.E. CERTIFICATION FOR CLOSUR.
CRITICAL ITEMS ACTIVITY REPORT

Report No. 7 | Date: 9-16-94
Page 2 of 2

IVITIES PERFORMED: (con't) | IN COMPLIANCE:

(cont) hole in ~~[illegible]~~ E.M. cut in end.

Over all went well. P.I.D readings have lowered substantially since opening & airline requirement has been dropped to only F.F resp.

Meeting to be held Monday morning for determining how "clean" is "clean" for the residuals.

No further entries 9-16-94 D.E.M.

No further entries
D.E.M.

000965

# ENSERCH ENVIRONMENTAL CORPORATION

# P.E. CERTIFICATION FOR CLOSURE CRITICAL ITEMS ACTIVITY REPORT

| | | | |
|---|---|---|---|
| CLIENT: FERMCO | TASK No. 42 | Date: 9-16-94 | Report No. 7 | Page 1 of 2 |
| GROUP: CRU-3, Mike Heinen | PROJECT: Detrex Still (HWMU #26) Closure | | |
| LOCATION: Fernald, OH | DESIGNATED REP. : David E. Mikkelson | CERTIFYING P.E. : David T. Johnson | |

CRITICAL ACTIVITY: Removal of Steam Unit & Clean out and Sampling of Residual Material.

| WEATHER: (Time) | | TEMP (DEG F): | | ACTIVITIES AFFECTED BY WEATHER: |
|---|---|---|---|---|
| CLEAR | | BELOW 0 | | 1. N/A |
| OVERCAST | | 0 – 32 | | 2. |
| LIGHT RAIN | | 33 – 50 | | 3. |
| HEAVY RAIN | | 51 – 70 | | 4. |
| SNOW | | 71 – 85 | | 5. |
| WINDY | | 86 – 100 | | 6. |
| | | ABOVE 100 | | 7. |

| WORK FORCE: | Number | EQUIPMENT: | No. | In Use: |
|---|---|---|---|---|
| Millwrights & Super no changes | 3 | No changes except fork lift | | yes |
| RSO - 2 laborers names unknow | 2 | not needed today. | | |
| at this time will get Monday. | | | | |
| IH - Todd Elliot | 1 | | | |
| Rad - R-Zenden. | 1 | | | |
| Mike Heinen - CRU3 Eng | 1 | | | |
| RSO Supervisor - Gene McFarland | 1 | | | |
| SMS - names unknow, will get Monday | 2 | | | |
| no further entries D.E.M. | | no further entries D.E.M. | | |

| DEFICIENCIES: | ACTION: |
|---|---|
| None. | |
| no further entries D.E.M. | |

| ACTIVITIES PERFORMED: | IN COMPLIANCE: |
|---|---|
| 1) Millwrights removed steam unit & wrapped in glovebag used to remove. | Yes |
| 2) SMS personel (2) proceeded to sample residuals. Residual is only a solid... no liquids present. Due to hardness of material ~~Ethyl~~ the a lint-free the quantity indicated to sample, only a minimum sample quantity was obtained. This was okd by Mike Heinen & Ken Katoff. (Since material is a concentrate this should be enough volume). SMS filled two 7 oz. containers. | Yes |
| 3) Inspected interior of tank when air line requirement was dropped. Bottom center 1/3 ≈ 6" wide by 24" is glossy shellac type hardened material, which is very hard on outside surface and slightly gumming at deepest point (1/2"). Other solids surround the center are flaky & crusty. Expect an solids that settled out during purification of the stripped solvents. | |
| 4) RSO crew attempted to clean the interior, but were only able to get 1/4 to 1/3 of the bottom done due to limited reach of hand tools. Shovel should not work as RSO intended. | |
| 5) Tank wraped in hurculite. RSO working thru (temporary | |

Signature: David E. Mikkelson

Title: Environmental Scientist

Phone: 860-0708

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. .E. CERTIFICATION FOR CLOSURE
CONTAINERIZATION SUMMARY

Report No. 8/9 | Date: 9-20-94
Page 2 of 2

ivity: Still Contamination | Material: Defuser Still Tank.

| | | |
|---|---|---|
| ntainer No. 653808 | Type: WMB | Lot Code assigned: unknown at this time |
| ntainer No. | Type: | Lot Code assigned: |
| ntainer No. | Type: | Lot Code assigned: |
| ntainer No. | Type: | Lot Code assigned: |
| ntainer No. | Type: | Lot Code assigned: |
| ntainer No. | Type: | Lot Code assigned: |
| ntainer No. | Type: | Lot Code assigned: |
| ntainer No. | Type: | Lot Code assigned: |
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| ntainer No. | Type: | Lot Code assigned: |
| ntainer No. | Type: | Lot Code assigned: |
| ntainer No. | Type: | Lot Code assigned: |
| ntainer No. | Type: | Lot Code assigned: |

MC&A will disposition and/or store until final disposition.

000967

# ENSERCH ENVIRONMENTAL CORPORATION

# P.E. CERTIFICATION FOR CLOSURE CRITICAL ITEMS ACTIVITY REPORT

| | | | |
|---|---|---|---|
| CLIENT: FERMCO | TASK No. 42 | Date: 9-20-99 | Report No. 96 | Page 1 of 2 |
| GROUP: CRU-3, Mike Heinen | PROJECT: Detrex Still (HWMU #26) Closure | | |
| LOCATION: Fernald, OH | DESIGNATED REP. : David E. Mikkelson | CERTIFYING P.E. : David T. Johnson | |

CRITICAL ACTIVITY: Contamination of still tank & support frame.

| WEATHER: (Time) | | TEMP (DEG F): | | ACTIVITIES AFFECTED BY WEATHER: |
|---|---|---|---|---|
| CLEAR | | BELOW 0 | | 1. N/A |
| OVERCAST | | 0 – 32 | | 2. |
| LIGHT RAIN | | 33 – 50 | | 3. |
| HEAVY RAIN | | 51 – 70 | | 4. |
| SNOW | | 71 – 85 | | 5. |
| WINDY | | 86 – 100 | | 6. |
| | | ABOVE 100 | | 7. |

| WORK FORCE: | Number | EQUIPMENT: | No. | In Use: |
|---|---|---|---|---|
| Operators: Vaugn Ryden | | Hand Stacker "Fork Lift" | 1 | yes |
| Kelly Blaire | | Port Band Saw | 1 | yes |
| | | Sawzall | 1 | yes |
| Millwrights: Robin | | Hand Tools (Ratchet & socket) | 1 | yes |
| Tony Barnes | | | | |
| Supervisor: Tom Cenuva | | | | |
| no further entries D.E.M. | | no further entries D.E.M. | | |

| DEFICIENCIES: | ACTION: |
|---|---|
| None. | |
| no further entries D.E.M. | |

| ACTIVITIES PERFORMED: | IN COMPLIANCE: |
|---|---|
| 1) Millwrights cut support from while operators suspended tank from fork lift. Once cut free tank was trimed of excess lengths of piping and lowered into box. Steam unit had been placed back into still & secured with a few bolts. | |
| 2) Still placed in WMB Serial # 653808 | |
| 3) Support frame and condenser unit placed in WMB serial # 653822. | |
| 4) No further entries, D.E.M. | |

Signature: David E. Mikkelson
David E. Mikkelson

Title: Environmental Scientist

Phone: 860-0708

# ENSERCH ENVIRONMENTAL CORPORATION

# P.E. CERTIFICA..JN FOR CLOSURE CRITICAL ITEMS ACTIVITY REPORT

| | | | | |
|---|---|---|---|---|
| CLIENT: FERMCO | TASK No. 42 | Date: 9-22-94 | Report No. 11 | Page 1 of 1 |
| GROUP: CRU-3, Mike Heinen | PROJECT: Detrex Still (HWMU #26) Closure | | | |
| LOCATION: Fernald, OH | DESIGNATED REP. : David E. Mikkelson | | CERTIFYING P.E. : David T. Johnson | |

CRITICAL ACTIVITY:

| WEATHER: (Time) | | TEMP (DEG F): | | ACTIVITIES AFFECTED BY WEATHER: |
|---|---|---|---|---|
| CLEAR | | BELOW 0 | | 1. N/A |
| OVERCAST | | 0 – 32 | | 2. |
| LIGHT RAIN | | 33 – 50 | | 3. |
| HEAVY RAIN | | 51 – 70 | | 4. |
| SNOW | | 71 – 85 | | 5. |
| WINDY | | 86 – 100 | | 6. |
| | | ABOVE 100 | | 7. |

| WORK FORCE: | Number | EQUIPMENT: | No. | In Use: |
|---|---|---|---|---|
| RSO Scabblers (Kelly) | 1 | Scabber, small three head. | 1 | yes |
| RSO Supervisor | 1 | Vac Pac | 1 | yes |
| | | Air Compressor | 1 | yes |

no further entries D.E.M.

no further entries D.E.M.

| DEFICIENCIES: | ACTION: |
|---|---|
| None. | |

no further entries D.E.M.

| ACTIVITIES PERFORMED: | IN COMPLIANCE: |
|---|---|
| 1) I inspected floor area for scabbled area delimiting. Enlarged area previously marked by M. Heinen to include drum change out area just north of still. Approximate dimensions are: 12' x 14' long, 3 x 8' area in NW corner. See drawing page 16 in Field Log. Approx. 162 ft². | |
| 2) Scabbling commenced about 10 am. | |
| 3) Pre-scabbling surface elevations taken 9-21-94. | |
| 4) No further entries 9-22-94 D.E.M. | |

Signature: David E. Mikkelson
David E. Mikkelson

Title: Environmental Scientist

Phone: 860-0708

000969

# ENSERCH ENVIRONMENTAL CORPORATION

# P.E. CERTIFICATION FOR CLOSURE CRITICAL ITEMS ACTIVITY REPORT

| | | | |
|---|---|---|---|
| CLIENT: FERMCO | TASK No. 42 | Date: 9-21-99 | Report No. 10 | Page 1 of 1 |
| GROUP: CRU-3, Mike Heinen | PROJECT: Detrex Still (HWMU #26) Closure | | |
| LOCATION: Fernald, OH | DESIGNATED REP. : David E. Mikkelson | CERTIFYING P.E. : David T. Johnson | |

CRITICAL ACTIVITY: Initial Floor elevations survey for Scabbling.

| WEATHER: (Time) | | TEMP (DEG F): | | ACTIVITIES AFFECTED BY WEATHER: |
|---|---|---|---|---|
| CLEAR | | BELOW 0 | | 1. N/A |
| OVERCAST | | 0 – 32 | | 2. |
| LIGHT RAIN | | 33 – 50 | | 3. |
| HEAVY RAIN | | 51 – 70 | | 4. |
| SNOW | | 71 – 85 | | 5. |
| WINDY | | 86 – 100 | | 6. |
| | | ABOVE 100 | | 7. |

| WORK FORCE: | Number | EQUIPMENT: | No. | In Use: |
|---|---|---|---|---|
| SMS - John Deho & assistant | 2 | Geodimer | 1 | yes |
| no further entries D.E.M. | | no further entries D.E.M. | | |

| DEFICIENCIES: | ACTION: |
|---|---|
| None. | |
| no further entries D.E.M. | |

| ACTIVITIES PERFORMED: | IN COMPLIANCE: |
|---|---|
| 1) SMS performed initial pre-scabbling floor elevation survey. | yes |
| 2) No further field activities 9/21/99 D.E.M. | |
| no further entries D.E.M. | |

Signature: David E. Mikkelson

Title: Environmental Scientist

Phone: 860-0708

# ENSERCH ENVIRONMENTAL CORPORATION

# P.E. CERTIFICATION FOR CLOSURE CRITICAL ITEMS ACTIVITY REPORT

| | | | |
|---|---|---|---|
| CLIENT: FERMCO | TASK No. 42 | Date: 9-26-94 | Report No. 13 | Page 1 of 1 |
| GROUP: CRU-3, Mike Heinen | PROJECT: Detrex Still (HWMU #26) Closure | | |
| LOCATION: Fernald, OH | DESIGNATED REP.: David E. Mikkelson | CERTIFYING P.E.: David T. Johnson | |

CRITICAL ACTIVITY: Scabbled Concrete Sampling, SMS elevation survey of Scabbled Area

| WEATHER: (Time) | | TEMP (DEG F): | | ACTIVITIES AFFECTED BY WEATHER: |
|---|---|---|---|---|
| CLEAR | | BELOW 0 | | 1. Not Applicable |
| OVERCAST | | 0 – 32 | | 2. |
| LIGHT RAIN | | 33 – 50 | | 3. |
| HEAVY RAIN | | 51 – 70 | | 4. |
| SNOW | | 71 – 85 | | 5. |
| WINDY | | 86 – 100 | | 6. |
| | | ABOVE 100 | | 7. |

| WORK FORCE: | Number | EQUIPMENT: | No. | In Use: |
|---|---|---|---|---|
| SMS - John Duka - Survey | | Normal SMS Sampling Equip | — | yes |
| SMS - Mike Grob - Sampling | | Geodimer | 1 | yes |
| no further entries D.E.M. | | no further entries D.E.M. | | |

| DEFICIENCIES: | ACTION: |
|---|---|
| Floor scabbling not to required depth. | Continue Scabbling |
| Drums & Containers still not labled. | Mark & Labled correctly per FEMP SOP. |
| no further entries D.E.M. | |

| ACTIVITIES PERFORMED: | IN COMPLIANCE: |
|---|---|
| 1) SMS Survey crew took 1st of post-scabbling elevation measurements. Results indicate only 0.075 inches feet have been removed (on average). (0.075 inches) | Not Yet |
| 2) Scabbling equipment capacity questionable. CRU-3 is investigating more efficient methods. | |
| 3) No further entries 9-26-94 | |
| no further entries D.E.M. | |

| Signature: | Title: | Phone: |
|---|---|---|
| David E. Mikkelson | Environmental Scientist | 860-0708 |

000971

# ENSERCH ENVIRONMENTAL CORPORATION

# P.E. CERTIFICA..ON FOR CLOSURE CRITICAL ITEMS ACTIVITY REPORT

| | | | |
|---|---|---|---|
| CLIENT: FERMCO | TASK No. 42 | Date: 9-23-94 | Report No. 12 | Page 1 of 1 |
| GROUP: CRU-3, Mike Heinen | PROJECT: Detrex Still (HWMU #26) Closure | | |
| LOCATION: Fernald, OH | DESIGNATED REP. : David E. Mikkelson | CERTIFYING P.E. : David T. Johnson | |

CRITICAL ACTIVITY: Floor Scabbling

| WEATHER: (Time) | | TEMP (DEG F): | | ACTIVITIES AFFECTED BY WEATHER: |
|---|---|---|---|---|
| CLEAR | | BELOW 0 | | 1. N/A |
| OVERCAST | | 0 - 32 | | 2. |
| LIGHT RAIN | | 33 - 50 | | 3. |
| HEAVY RAIN | | 51 - 70 | | 4. |
| SNOW | | 71 - 85 | | 5. |
| WINDY | | 86 - 100 | | 6. |
| | | ABOVE 100 | | 7. |

| WORK FORCE: | Number | EQUIPMENT: | No. | In Use: |
|---|---|---|---|---|
| RSO Scabber (Kelly) | 1 | Three head (Small) scabbler | 1 | yes |
| RSO Supervisor | 1 | Vac Pac | 1 | yes |
| | | Air Compressor | 1 | yes |
| no further entries D.E.M. | | no further entries D.E.M. | | |

| DEFICIENCIES: | ACTION: |
|---|---|
| None. | |
| no further entries D.E.M. | |

| ACTIVITIES PERFORMED: | IN COMPLIANCE: |
|---|---|
| 1) RSO continuing with floor scabbling. Estimate only 1/16 of inch is completed. M.H. says few days there got close to 1/4 inch. I don't believe they are correct. They did not use my suggestion of alternate passes for depth judgement. | Maybe |
| 2) SCMS to resurvey in area (Monday) | |
| 3) No further entries 9-23-94 | |
| 4) | |
| no further entries D.E.M. | |

| Signature: | Title: | Phone: |
|---|---|---|
| David E. Mikkelson | Environmental Scientist | 860-0708 |

# ENSERCH ENVIRONMENTAL CORPORATION

# P.E. CERTIFICATION FOR CLOSURE CRITICAL ITEMS ACTIVITY REPORT

| | | | |
|---|---|---|---|
| CLIENT: FERMCO | TASK No. 42 | Date: 9-28-94 | Report No. 14 | Page 1 of 2 |
| GROUP: CRU-3, Mike Heinen | PROJECT: Detrex Still (HWMU #26) Closure | | |
| LOCATION: Fernald, OH | DESIGNATED REP.: David E. Mikkelson | CERTIFYING P.E.: David T. Johnson | |

CRITICAL ACTIVITY:

| WEATHER: (Time) | | TEMP (DEG F): | | ACTIVITIES AFFECTED BY WEATHER: |
|---|---|---|---|---|
| CLEAR | | BELOW 0 | | 1. Not applicable |
| OVERCAST | | 0 – 32 | | 2. |
| LIGHT RAIN | | 33 – 50 | | 3. |
| HEAVY RAIN | | 51 – 70 | | 4. |
| SNOW | | 71 – 85 | | 5. |
| WINDY | | 86 – 100 | | 6. |
| | | ABOVE 100 | | 7. |

| WORK FORCE: | Number | EQUIPMENT: | No. | In Use: |
|---|---|---|---|---|
| RSO scabbling crew | 2 | Pnumatic Rotary Hammers | 2 | yes |
| RSO supervisor | 1 | 'Vac Pac' vacuume/drum | | |
| RSO general crew | 2 | setup | 1 | yes |
| no further entries D.E.M. | | no further entries D.E.M. | | |

| DEFICIENCIES: | ACTION: |
|---|---|
| None. | |
| no further entries D.E.M. | |

| ACTIVITIES PERFORMED: | IN COMPLIANCE: |
|---|---|
| 1) RSO continued with scabbling of floor area. Size of area to scabble to 0.6 cm Pyst Beam reduced to the original size specified in the CRIP. Area to be taken down is that directly below the Detrex still and measures ≈ 3½ by 6½ feet. | yes |
| 2) RSO scabblers switched to rotary hammers to remove the concrete as original scabber is much too slow. | ok |
| 3) RSO marked and labled containers for the LLR, Mixed, and Mixed/TSCA waste streams. | yes |
| · Still Tank - WMB 653808 Lot W124-120-Y003-4393 #1 | |
| · Condenser & Frame WMB 653822 Lot W124-120-Y003-4393 #2 | |
| · Mixed Waste - 3-55 gal OT Lot R124-120-Y003-9393 1,2&3 | |
| · LLR - 1-55 gal Lot W124-120-Y003-4393 #1 | |
| 4) No further entries 9-28-94 | |

| Signature: | Title: | Phone: |
|---|---|---|
| David E. Mikkelson | Environmental Scientist | 860-0708 |

ENSERCH ENVIRONMENTAL CORPORATION

**[illegible] CERTIFICATION FOR CLOSURE CONTAINERIZATION SUMMARY**

Report No. 19 | Date: 9-28-94 | Page 2 of 2

Activity: All Detrex activities    Material: Varies

| Container No. | Type | Lot Code assigned |
|---|---|---|
| 653800 | WMB (Still) | W124-120-V003-4393 #1 |
| 653822 | WMB (Frame & Condenser) | W124-120-V003-4393 #2 |
| 1 | 55g OT LLR | W124-120-V003-4393 #1 |
| 1, 2 & 3 | 55g OT Mixed | R24-120-V003-9393 |
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No further entries D. Smith 9-28-94

* MC&A will disposition and/or store until final disposition.

000973

# ENSERCH ENVIRONMENTAL CORPORATION

# P.E. CERTIFICATION FOR CLOSURE CRITICAL ITEMS ACTIVITY REPORT

| | | | |
|---|---|---|---|
| CLIENT: FERMCO | TASK No. 42 | Date: 9-29-99 | Report No. 15 \| Page 1 of 2 |
| GROUP: CRU-3, Mike Heinen | PROJECT: Detrex Still (HWMU #26) Closure | | |
| LOCATION: Fernald, OH | DESIGNATED REP.: David E. Mikkelson | | CERTIFYING P.E.: David T. Johnson |

CRITICAL ACTIVITY: Decon of Support Structure and Condenser

| WEATHER: (Time) | | TEMP (DEG F): | | ACTIVITIES AFFECTED BY WEATHER: |
|---|---|---|---|---|
| CLEAR | | BELOW 0 | | 1. Not applicable. |
| OVERCAST | | 0 – 32 | | 2. |
| LIGHT RAIN | | 33 – 50 | | 3. |
| HEAVY RAIN | | 51 – 70 | | 4. |
| SNOW | | 71 – 85 | | 5. |
| WINDY | | 86 – 100 | | 6. |
| | | ABOVE 100 | | 7. |

| WORK FORCE: | Number | EQUIPMENT: | No. | In Use: |
|---|---|---|---|---|
| RSO - Decon personnel | 2 | Standard Old D&D facility steamcleaner. | 1 | Yes |
| RSO - Super - Roy Douglas | 1 | | | |

No further entries
D.E.M.

No further entries
D.E.M.

| DEFICIENCIES: | ACTION: |
|---|---|
| None with framing. Condenser surfaces (interior of water jacket not accessable). | None required. CRU3 addressing issue. |

No further entries
D.E.M.

| ACTIVITIES PERFORMED: | IN COMPLIANCE: |
|---|---|
| 1) RSO D&D personnel steam cleaned condenser (after complete disassembly). All areas where product would have contacted cleaned with exception of dead side 1/2" ID tubes where product vapors would pass through the cooling jacket. Steam was forced through the tubes (≈ 30" long). Visual inspection by myself (DEM 9/29-01) did not reveal any external signs of debris. Internal surfaces of condenser were relatively free of any contaminants (visual) or staining before wash. Expect all residuals present from product have been removed. Very little to no staining present. 5½ rule is satisfied for all areas accessable. However internal surfaces of water jacket were not exposable. Supposedly only clean site water was allowed to supply the cooling jacket. But since this surface is not exposable for final survey & application of 5½ rule deconing is therefore not totally complete. CRU3 will address issue. | no. will be a deviation |
| 2) Decon solution sampled & drummed. | Yes |

| Signature: | Title: | Phone: |
|---|---|---|
| David E. Mikkelson | Environmental Scientist | 860-0708 |

David E. Mikkelson

**ENSERCH ENVIRONMENTAL CORPORATION**

**. .E. CERTIFICATION FOR CLOSURE CONTAINERIZATION SUMMARY**

Report No. 15 Date: 9-29-97

Page 2 of 2

Activity: Decon of Frame Support & Condenser Unit

Material: Spent Decon solution (H2O, Soap & Contaminants)

| | | |
|---|---|---|
| Container No. 1 | Type: 55 gal Bung | Lot Code assigned: W121-120-Y012-0393 |
| Container No. 2 | Type: ↓ | Lot Code assigned: ↓ |
| Container No. 3 | Type: ↓ | Lot Code assigned: ↓ |
| Container No. | Type: | Lot Code assigned: |
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| Container No. | Type: | Lot Code assigned: |

Further entries 9-29-97

* MC&A will disposition and/or store until final disposition.

000375

# ENSERCH ENVIRONMENTAL CORPORATION

# P.E. CERTIFICATION FOR CLOSURE CRITICAL ITEMS ACTIVITY REPORT

| | | | |
|---|---|---|---|
| CLIENT: FERMCO | TASK No. 42 | Date: 10-3-94 | Report No. 16 | Page 1 of 1 |
| GROUP: CRU-3, Mike Heinen | PROJECT: Detrex Still (HWMU #26) Closure | | |
| LOCATION: Fernald, OH | DESIGNATED REP. : David E. Mikkelson | CERTIFYING P.E. : David T. Johnson | |

007211

CRITICAL ACTIVITY:

| WEATHER: (Time) | | TEMP (DEG F): | | ACTIVITIES AFFECTED BY WEATHER: |
|---|---|---|---|---|
| CLEAR | | BELOW 0 | | 1. Not Applicable |
| OVERCAST | | 0 – 32 | | 2. |
| LIGHT RAIN | | 33 – 50 | | 3. |
| HEAVY RAIN | | 51 – 70 | | 4. |
| SNOW | | 71 – 85 | | 5. |
| WINDY | | 86 – 100 | | 6. |
| | | ABOVE 100 | | 7. |

| WORK FORCE: | Number | EQUIPMENT: | No. | In Use: |
|---|---|---|---|---|
| None | | None | | |

No further entries D.E.M.

| DEFICIENCIES: | ACTION: |
|---|---|
| None | |

no further entries D.E.M.

| ACTIVITIES PERFORMED: | IN COMPLIANCE: |
|---|---|
| 1) Personal inspection of scabbled floor areas. Application of 5% rule. No standing es present... either in the deep scabbled HWMU area (as defined) or in the expanded shallow area scabbling (surrounding the HWMU). | |
| 2) Measured area (weight) and entered into Field log (Pg 23). | |
| 3) Total area scabbled 129.75 ft², HWMU (as defined) area 22.75 ft² at ≈ 1/2" depth. | |
| 4) Scabbling meets the requirements as set forth in CAID. | |
| 5) No further entries 10-3-94. | |

1/2"

| Signature: | Title: | Phone: |
|---|---|---|
| David E. Mikkelson | Environmental Scientist | 860-0708 |

000976

# ATTACHMENT H

# CRU3 FIELD IMPLEMENTATION NOTES

# Detrex Still Field Implementation Notes

**DETREX STILL IMPLEMENTATION**
CRU3 EE Field Rep.: Michael Heinen
Date: 12-Sep-94

NOTE: Asbestos was removed from the steam lines on 5-Sep-94.

1:45 pm: Millwrights removed water piping from the condenser. Found that it was still filled with water (approx. 4 1/2 - 5 gallons). I called into Ken Kolthoff to see where to disposition this water. He said that since it never contacted hazardous waste and was from the chill water line, that it can be put in the WMB with the condenser and structural support steam clean for characterization.

2:05 pm: Removal of steam lines from underneath Still.

2:30 pm: Break for day.

**DETREX STILL IMPLEMENTATION**
CRU3 EE Field Rep.: Michael Heinen
Date: 13-Sep-94

8:10 am: Millwrights dress out to remove remainder of water lines and hazardous waste lines. I believe condenser is scheduled to be removed this morning.

8:45 am: Millwrights begin removal of water line entering sump. This is done and size reduced to fit in a 55-gall. drum in the area.

8:55 am: Millwrights cut through solvent fill lines. IH onhand to get readings. IH reports 37 ppm on his PID at the opening of the haz waste lines. Liquid was seen dripping out of pipe leading to pump after it was removed. This liquid was caught on an absorbent pad and the remainder was placed in a mixed waste drum. Removal of the solvent drain line from the condenser found NO liquids.

Smell of solvents was very evident standing just outside the roped off area.

**DETREX STILL IMPLEMENTATION**
CRU3 EE Field Rep.: Michael Heinen
Date: 14-Sep-94

9 am: Went out to the control point to see if they were working. Millwrights were there and they informed me that they were moved to a dust collector job upstairs in Plant 1 instead. I asked why and they told me that there was not any equipment (ie. handstacker, etc.) available to complete the rest of the job. Also there was a disagreement between Maint. and Safe Shutdown as to which breathing

system they should use. Safe Shutdown already had a compressor system there, but Maint. wanted a Cascade Tank system.

9:20 am: I went to talk to Al Combs, Safe Shutdown Plan writer, he informed me that there wasn't enough equip. to do the job and in order to keep the Millwrights, they had to put them on another job. Work cancelled for today. Samplers and Jeff Eagle notified.

**DETREX STILL IMPLEMENTATION**
CRU3 EE Field Rep.: Michael Heinen
Date: 15-Sep-94

Morning: Millwrights and fork truck driver enter area to disconnect condenser unit. This was done and the condenser was staged on a piece of Herculite in the area.

1:10 pm: Same people go in to disconnect the legs from the floor and move it West or 90 degrees South.

1:30 pm: Still moved South. I noticed that the pump had not been removed from the structure yet. I asked the Millwrights to remove it while they were in the area.

1:40 pm: Quit for day.

**DETREX STILL IMPLEMENTATION**
CRU3 EE Field Rep.: Michael Heinen
Date: 16-Sep-94

Safe Shutdown Supervisors - Bill Brabender and Tim Feltner

9:22 am: Millwrights and IH dress out in Saranac's and airlines to go in and crack open the Still tank. Samplers SCBA just arrived. They will return from the Lab shortly.

9:42 am: Millwrights prep area with glovebag and begin trying to take box off.

10:24 am: Millwrights finally get steam box with heating elements out. I had to run to Stores to get a male and female connector for one of Maint.'s airlines. Their's was lacking it.

10:31 am: Heating elements inside will not come out all the way. Millwrights decide to use band saw to cut some pieces off. Samplers were asked to help support the box while it was being cut. While they were doing this, one of Millwright's airlines blew off. One of the samplers picked it up immediately and they both left the area. IH inspected the airline, determined it was clean, and the sampler placed it back into its connector.



000979

10:38 am: Work resumes. Millwrights report no liquid in Still. "Gummed up solid residue" as they put it. Samplers said that it may be too hard for them to get the required amount for the sample. I asked them to get as much as possible.

Millwrights reported no residue running up the sides of the tank.

11:00 am: An alarm sounds from one of the sampler's tanks. While they left the area, IH went in to reassess the area with a PID. He said that the samplers could go back in with full faced respirators with combination cartridges. Reentered area to get their samples.

They could only get enough for the sample and part of the duplicate. I informed them that that would be fine with the concentrated waste we were dealing with.

11:04 pm: Samplers finished. Quit for lunch.

1:30 pm: Professional Engineer Rep. and IH go into area to look at residue. Report that the tank has a "glassy bottom, almost shelac-like".

1:40 pm: Haz Wats go in to wrap up Still Tank and remove residues.

2:35 pm: Quit for day. About 1/3 of residues removed so far.

**DETREX STILL IMPLEMENTATION**
CRU3 EE Field Rep.: Michael Heinen
Date: 19-Sep-94

1:00 pm: Hazwats are observed scraping out inside of Still. Ken Kolthoff said that we need to try and remove what residue we can from inside the Still.

1:16 pm: Safe Shutdown Supervisor, Tim Feltner, reports that they cannot get anymore residue with the putty knife taped to an extension pole. Called Ken Kolthoff... he said to quit for the day and we will discuss it when I get back.

1:28 pm: Safe Shutdown exit area.

**DETREX STILL IMPLEMENTATION**
CRU3 EE Field Rep.: Michael Heinen
Date: 20-Sep-94

8:15 am: Steam box replaced. Millwrights remove Still from area. WMB is preped for Still Tank.

8:47 am: Millwrights hook still tank to hand stacker.

8:53 am: Rigging hooked up to tank, cutting legs off of tank.

From plan, dimensions of Still Tank is 2'8"x4'x6'4"

9:21 am: Legs removed. Attempting to put tank in WMB. Steam box will not fit in WMB in present condition. Millwrights try to make it shorter by removing steam valves sticking out from ends. Box #653808.

9:45 am: Structural support and condenser unit put into another WMB. #653822.

9:58 am: Tops placed on both boxes. Box with condenser and structural supports was observed by Maint. supervisor to have about 2-3 inches of rain water in it. I instructed them to proceed... water would be characterized for disposition with the decon. rinse.

10:10 am: Quit for day.

**DETREX STILL IMPLEMENTATION**
CRU3 EE Field Rep.: Michael Heinen
Date: 21-Sep-94

8:56 am: Went out to Detrex with Allen Neiling to mark off boundary of unit for scabbling with a paint stick. Estimated area marked to be about 30-40% stained. Contiguous staining outside area visible to the west and North of area. These areas were initially outlined as well.

9:48 am: Finished outlining area. No work by RSO today.

**DETREX STILL IMPLEMENTATION**
CRU3 EE Field Rep.: Michael Heinen
Date: 22-Sep-94

8:48 am: PE rep. goes out to area to verify boundary of HWMU in marked area. Scabbling equipment set up and ready to go when workers get back from break.

8:54 am: PE rep. informed me that I had not gotten the entire area. North section near window (suspected to be where they moved the drums in/out for distilling) needed to be included. PE rep. said that he could fix it with out a problem.

9:35 am: Safe Shutdown operators begin vacuuming area with Vac-Pac.

9:40 am: Begin scabbling.

10:32 am: Quit for lunch.

12:30 pm: Jim Hill, Safe Shutdown supervisor, informed me that scabbling resumed at 12 pm. As of now, 2 sections approx. 2'x7' scabbled. Not known how deep they have gone. Jim Hill says that he plans to rotate operators every 40 minutes.

12:40 pm: Rotated operators
1:40 pm: Rotated operators

2:28 pm: Shutdown for the day. Surveyors should be in later today to determine the depth so far. PE rep. confirmed that regs state that concrete must be removed 0.6 cm.

**DETREX STILL IMPLEMENTATION**
CRU3 EE Field Rep.: Michael Heinen
Date: 23-Sep-94

8:15 am: Scabbling of northern area continues. Waiting for surveyors to determine depth so far.

8:45 am: Evacuate area and prepare to exit to services building for Criticality drill. Quit until after lunch.

11:55 am: Scabbling resumes. 2 sections left to finish up and then paint over for reference. Survey postponed until Monday Sep-26.

1:00 pm: rotate operators.
1:55 pm: rotate operators.

2:30 pm: First pass of scabbling complete. Operator will spray newly scabbled concrete with spray paint for reference.

2:48 pm: Quit for day.

**DETREX STILL IMPLEMENTATION**
CRU3 EE Field Rep.: Michael Heinen
Date: 26-Sep-94

8:44 am: Surveyors measure depth of previous scabbling effort. Samplers dress out to sample scabbled material in drum.

9:00 am: Surveyors report an average of 1/32" removed. Samplers go in to take their sample. Drum was moved inside building to minimize release to environment.

9:07 am: Samples taken. Break for lunch.

12:10 pm: Begin scabbling. Looking for a jackhammer or something similar to speed up the scabbling process. Doing a 1'x1' area to see how long it takes to get down to 1/4".

1:30 pm: Quit because eye wash station needed at the Safe Geo Sump project.

**DETREX STILL IMPLEMENTATION**
CRU3 EE Field Rep.: Michael Heinen
Date: 27-Sep-94

9:17 am: Scabbling resumes using same 3-pistoned scabbler. Waiting for jackhammer to speed up process for Friday deadline. Seems we have been able to borrow one from the Silos project with a push bit.

After a call into Jeff Eagle, we've decided to reduce our area of scabbling to one foot in each direction from the boundary of the unit. We will concentrate in this area to try and make the Friday deadline.

12 pm: Jackhammer from Silos project missing piece that holds bit in place. Shutdown job until we can find safe equipment.

2:00 pm: Talked to Joan White, a manager in Safe Shutdown not related to this project. I informed her of our situation of not having the right equipment. She said that she does have a rotary hammer that we can use. Operators will be trained on the equipment first thing tomorrow.

**DETREX STILL IMPLEMENTATION**
CRU3 EE Field Rep.: Michael Heinen
Date: 28-Sep-94

8:53 am: Two operators enter area with a rotary hammer each. Each hammer has a push bit and a chisel bit.

NOTE: Still Tank in WMB... lot coded R124-120-V003-4393
OH6890008976
Condenser Unit/Structural Supports... lot coded W124-120-V003-4393
Mixed Waste Drums (3) lot coded R124-120-V003-9393
Low Level Waste Drum(steam/water lines) (1) lot coded W124-120-V003-4393
Concrete (1)... lot coded W124-120-V011-0393

9:50 am: switch operators
10:25 am: break for lunch
11:45 am: Resume operation with operators Vaughn and Bill.

1:00 pm: Switched operators. Area mostly done. Asked them to vacuum area completely and check for high spots.

2:00 pm: Finished. Survey area again in the morning, also steam clean condenser and structural supports.

**DETREX STILL IMPLEMENTATION**
CRU3 EE Field Rep.: Michael Heinen
Date: 29-Sep-94

9:12 am: At Building 69, D&D, prepping for steam cleaning. Another WMB is brought in to do work over and take a sample out of. Discovered aboubt 2-3" of rain water in box brought in from Plant 1 with condenser unit and structural supports inside. Told Roy Douglas,

Supervisor at D&D, to have his workers pump the rain water into same drum that steam clean rinse water will go into after it is sampled. He agreed.

10 am: Steam clean with detergent begins.

10:22 am: After inspection of condenser unit, determined that it will be <5% stained. There are varied rust spots on exterior of condenser that the steam with detergent could not remove.

10:47 am: Begin steam clean of structural supports.

11:30 am: Steam completed. Upon inspection of the structural supports, we found that it had a great deal of rust with spots of paint (looks to be the original paint when it was installed). Sample of rinse after lunch.

12:00 pm: Samplers take sample of rinse water. I instructed Roy Douglas that after the WMBs are pumped into drums, to place the condenser and supports back into the original WMB with the lot coding. This was done and awaits further instruction on where it needs to go.

3 55-gall. drums of rinse water produced: W124-120-V012-0393

NOTE: Surveyors (John Deho and partner) took their readings. They found that we had exceeded the 1/4" removal criteria, with an average removal of 1/2" of concrete.

**DETREX STILL IMPLEMENTATION**
CRU3 EE Field Rep.: Michael Heinen
Date: 4-Oct-94

8 am: Talked to Tim Feltner, Safe Shutdown supervisor, today. Said that he is in the process of finding a home for each of the drums of waste that we generated. Said that we may have to send the concrete to Building 64, Thorium Warehouse (?)

I have attained copies of the W-65 cards for each of the containers we have generated. Filed.

**DETREX STILL IMPLEMENTATION**
CRU3 EE Field Rep.: Michael Heinen
Date: 6-Oct-94

8 am: Went out to Plant 1 to meet Tim Feltner inorder to open up the "mixed" waste drums to verify what their contents are. With 3 workers, we opened the 3 drums and the following was concluded:

R124-120-V003-9393 DR.1 - Contact waste, PPE
R124-120-V003-9393 DR.2 - Contact waste, PPE

R124-120-V003-9393 DR.3 - Piping, motor/pump, solvent residue, paint roller

Tim Feltner said that he would have the lot code changed on drum 3 as soon as he could get it back on the clean pad. I will find out from him tomorrow what it was changed to.

**DETREX STILL IMPLEMENTATION**
CRU3 EE Field Rep.: Michael Heinen
Date: 7-Oct-94

8:55 am: Talked to Tim Feltner. Said that he thought I was going to find out the new lot code for him. He said to call Linda Lee(6251) in MC&A to find out.

Called her. She is in training and will not be back until late this afternoon or early Monday morning. Will try again.



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